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UNITED STATES TARIFF COMMISSION
Washington, D.C.

# TRADE AGREEMENT DIGESTS

## Volume III

# METALS AND MANUFACTURES

Part 1

(This volume is in three parts. Part 1 includes digests on items provided for in paragraphs 301 to 328, inclusive, of Schedule 3 of the Tariff Act of 1930, which are listed for consideration in the proposed negotiations; Part 2 includes digests on listed items provided for in paragraphs 329-371, inclusive; and Part 3 includes digests on listed items provided for in paragraph 372 and the following paragraphs in Schedule 3 and digests on related items in the free list which are subject to import-excise taxes.)

Prepared by the Tariff Commission for use in connection with trade agreement negotiations

November 1946

List of Volumes in this Series

Volume I - Chemicals, Oils, and Paints

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Volume III - Metals and Manufactures

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## Introduction

This volume (Volume III) contains approximately 230 digests of statistical, technical, and trade data on metallic ores, metals, and metal manufactures, which have been listed (up to November 9, 1946) by the Trade Agreements Committee for consideration in the proposed trade agreement negotiations with those foreign countries which have been invited to participate in the so-called "nuclear" group. The digests cover all listed products provided for in Schedule 3 of the Tariff Act of 1930 and related items on the Free List of the tariff act which are subject to import-excise taxes. Volumes similar to this one have been or are being prepared by the Tariff Commission on commodities provided for under other schedules of the tariff act which have been listed for these negotiations. The products on the Free List of the act which are subject to import-excise or processing taxes are treated as dutiable commodities and are covered by digests which appear in the volumes for the tariff schedules to which such products are most nearly related. In addition, a special volume will be issued covering all commodities on the Free List which have been listed for the negotiations, and which are not subject to import-excise or processing taxes.

Volume III is in three parts. Part 1 includes digests on items, provided for in paragraphs 301 to 328, inclusive, of Schedule 3 of the Tariff Act of 1930, which are listed for consideration in the proposed negotiations; part 2 includes digests on listed items provided for in paragraphs 329 to 371, inclusive; and part 3 includes digests on listed items in paragraph 372 and all following paragraphs in Schedule 3 and digests on related items in the Free List subject to import-excise taxes.

Schedule 3 provides for a wide variety of metal products ranging from metallic ores through unmanufactured metals and mill products to completely fabricated articles ready for final consumption. The principal related products on the Free List which are subject to import-excise taxes are copper oreas, unmanufactured copper, lignite, coal, and coke.

United States production in 1939 of the commodities of the kinds covered by Schedule 3 and all related products on the Free List subject to import-excise taxes (including items not listed for the proposed negotiations) was as follows 1/: Iron and steel rolling mill and foundry products, 3,878 million dollars; nonferrous metals and ferro-alloys, 477 million dollars; other metal products (advanced manufactures), 9,294 million dollars. The output of these products during the war, of course, greatly exceeded the output in 1939. As most of the output of rolling mill and foundry products and as practically all of the non-ferrous metals and ferro-alloys are used in the production of advanced metal manufactures, a combined total of the three figures given here would contain extensive duplic tion. Moreover, there is considerable duplication within each of these figures.



1/ The value of the domestic output of coal and related solid mineral fuels is not included in the production figures given here, as only negligible quantities of the imports of these products are subject to the import-excise tax. In 1939 domestic production of these fuels amounted to somewhat less than 1 1/4 billion dollars, exports amounted to about 67 million dollars, and total United States imports to 5 million dollars. (foreign value), of which $26,000 was taxable.

United States imports of all products provided for in Schedule 3 (those listed as well as those not listed for consideration in the proposed negotiations), and including related items on the Free List subject to import-excise taxes, amounted to 94 million dollars [1] (foreign value) in 1939. The total imports in 1939 were slightly smaller than in 1937, the peak year of the 1930's, but substantially larger than the average annual imports during the five pre-war years (1935-39). In the aggregate, these imports supplied about 0.7 percent of the value of domestic consumption (estimated, excluding duplication) before the war, though for many items the ratio was much higher or lower. Imports of low-priced iron and steel rolling mill and foundry products have come largely from Germany and Belgium, while high-priced steel products have come principally from Sweden. Imports of manganese ore, the most important nonferrous metal in the imports into the United States, comes largely from the U.S.S.R., India, the Gold Coast, and Cuba. The imports of advanced manufactures of metals come mostly from the highly industrialized countries of Europe.

The value of United States exports of all products of the kinds provided for in Schedule 3, including related items on the Free List subject to import-excise taxes, amounted to 1.3 billion dollars [2] in 1939. Exports of metals and manufactures go to practically every country of the world. Canada and the United Kingdom are the leading export markets; these two countries took about one-third of the 1939 exports. The principal export items are motor vehicles, electrical apparatus, machine tools, other industrial machinery, and iron and steel rolling mill products.

The ratio of the duties (and import-excise taxes) collected on all imports of products provided for in Schedule 3 (including related items on the Free List which are subject to import-excise taxes) to the foreign value of such imports was 30 percent in 1939.

Those items listed for consideration in the proposed negotiations, and covered by the digests contained herein, represented approximately 80 percent by value of the total imports in 1939 of all commodities provided for in Schedule 3 and all related Free List items subject to import-excise taxes.[3] The listed items represent about 75 percent of the value of imports in 1939 of iron and steel rolling mill and foundry products, practically all of the imports of nonferrous ores, metals, and ferro-alloys, and about 60 percent of the imports of all other metal products. Of the total value of imports in 1939 of the items listed for consideration in the proposed negotiations about two-thirds were accounted for by the following 5 commodities in the order of magnitude: nickel and manufactures, ferro-alloys, clocks and watches, machinery and electrical apparatus, aluminum and manufactures.

## Explanatory Notes

The digests presented herein have been kept as brief as possible and contain only the data most pertinent to an understanding of the international competitive situation with respect to the various products. It was obviously impractical to include all the facts pertaining to the many commodities listed for consideration. Supplementing the data given in the digests, and available for use in the negotiations, is the extensive information contained in the files of the Commission and in its numerous published reports, as well as the knowledge and experience of its staff.

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1/ This figure does not include imports of copper and other metals free of duty (or excise tax) for smelting, refining and export, or imports for consumption free of duty from Cuba and the Philippine Islands, but it does include all taxable imports for consumption of such metals.

2/ Does not include reexports of copper and other metals imported duty or tax free for smelting, refining, and export, but it does include exports of such metals contained in products on which drawback of the duty or tax was paid and exports of such metals produced in the United States.

3/ Items, which in 1939 accounted for 70 percent of the total value of imports under Schedule 3, were subject to reduced rates of duty provided in trade agreements in effect on April 1, 1945.

In several instances, where a number of closely related products are listed for consideration, a Summary Digest is given in addition to separate digests on each of the listed items. The Summary Digest gives statistics of production, exports, and imports for the group of related products as a whole, describes the interrelationships among the several products, and discusses general competitive problems. In a few cases the Summary Digest covers items which are not listed for consideration in the proposed negotiations and not covered by separate digests; such unlisted items have been included in order to give a more complete picture of the production and trade in all the related products of an industry. Occasionally the statistics of production given in such a Summary Digest relate to the product in both unfabricated and fabricated forms, resulting in some duplication. Where duplication is significant, attention is called to the fact.

Most of the digests give statistics of United States production, exports, and imports (total and by principal sources) for the three prewar years, 1937, 1938, and 1939 and for one war year, 1943. In the case of some commodities the statistics cover a much longer period. Where statistics of production or of exports of a particular commodity are not available, estimated figures, or some other indication of the relative importance of production and exports as compared with imports, are given when possible. Frequently a digest covers more than one statistical import class. In such cases, if the imports are significant, a supplementary table is given, showing for 1939, or some other representative prewar year, statistics of United States imports by individual statistical classes, by principal country of origin. Where exports under lend-lease are substantial, as well as where imports free for Government use, or free as an act of international courtesy, or free under special provisions of the Tariff Act of 1930 are substantial, they are indicated in footnotes to the tables.

Import values are in practically all cases foreign values, i.e., they do not include duties, transportation costs, and certain other charges incidental to the shipment of products from the foreign country to the United States. These values, therefore, are not strictly comparable with the values shown for United States production (which are usually the sales value of the product at the plant) or for exports (which represent the actual selling price including inland freight and other charges to the port of exportation).

The countries which are the principal sources of imports are generally listed in the table in the order of the magnitude (by value) of imports from them in 1939; and names of the proposed negotiating countries are given in capital letters.

The digests show for each item the rate of duty provided in the Tariff Act of 1930 and the 1945 (January 1) rate. Changes in the duty since the act of 1930 became effective are shown in detail in footnotes. When it is significant, the ad valorem equivalent (or the specific equivalent) of each rate of duty is given in a general note following the section on tariff rates.

In the case of many of the schedules, rates of duty on certain commodities were reduced by the trade agreements with the United Kingdom and Canada, effective January 1, 1939. The economic conditions in these countries and throughout the world were so disturbed in 1939, as the result of preparations for and actual outbreak of war, that the statistics of United States imports for that year cannot be taken as indicating what would have been the effects of these duty reductions under peacetime conditions; the import data for the war years are still less indicative of what would have been those effects.

# PIG IRON

Stat. import classes (1939): 6003.2-6003.5

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries 2/ | INDIA 3/ | CANADA | NETHERLANDS | United Kingdom |
| | Quantity (1,000 short tons) | | | | | | |
| 1937 - | 40,465 | 876 | 125 | 78 | 7 | 32 | 4/ |
| 1938 - | 20,772 | 485 | 34 | 14 | 3 | 16 | 4/ |
| 1939 - | 34,809 | 198 | 43 | 28 | 8 | 7 | - |
| 1943 - | 60,811 | 5/ 144 | 6/ 1 | 4/ | 4/ | - | 1 |
| | Value (1,000 dollars) | | | | | | |
| 1937 - | 731,139 | 19,403 | 1,701 | 848 | 203 | 534 | 2 |
| 1938 - | 356,875 | 7,135 | 598 | 198 | 78 | 262 | 1 |
| 1939 - | 626,825 | 3,436 | 663 | 350 | 173 | 127 | - |
| 1943 - | 1,273,634 | 5/ 4,291 | 6/ 41 | 25 | 1 | - | 10 |

1/ Value figures represent pig iron shipped (for sale or own use) from blast furnaces as reported by the U. S. Bureau of Mines.

2/ Imports of pig iron containing dutiable alloy were nil in 1939 and less than 1,000 tons in 1937 and 1938.

3/ Includes Burma in 1937. 4/ Less than 500.

5/ Includes 128.thousand tons valued at 3,884 thousand dollars exported under lend-lease.

6/ Free for Government use, 1 thousand tons valued at 31 thousand dollars.

Source: Production from American Iron and Steel Institute, Annual Statistical Report, except as noted; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 301 | Per long ton | | |
| Iron in pigs and iron kentledge: | | | |
| Not containing more than 0.04 percent phosphorus 1/ | $1.125 | 2/ $0.75 | CANADA |
| Containing more than 0.04 percent phosphorus 1/ | 1.125 | 1.125 | INDIA, NETHERLANDS |
| Provided ***, that an additional duty *** shall be levied, collected and paid on all the foregoing containing: 3/ | Per pound of alloy content | | |
| Vanadium in excess of 1/10 of 1 percent | $1.00 | $1.00 | |
| Tungsten in excess of 2/10 of 1 percent | .72 | .72 | |
| Molybdenum in excess of 2/10 of 1 percent | .65 | .65 | |
| Chromium in excess of 2/10 of 1 percent | .03 | .03 | |

1/ Distinction for tariff purposes between grades of pig iron as to phosphorus content was first made in the trade agreement with the United Kingdom. No such division exists in the act of 1930.

2/ Trade agreement with the United Kingdom, effective January 1939.

3/ In negotiating regarding the above two base rates, there is no practical necessity for differentiating between pig iron containing and not containing

dutiable alloys; similarly, negotiation of the additional rates of duty on specified alloys should be carried out without regard to phosphorus content of pig iron. Such a procedure, if followed, will avoid unnecessary complications in the tariff. As explained in the latter part of this digest, these additional rates for alloy content, as shown above, are compensatory for the rates on such alloys contained in related materials and products.

Note.- In 1939 the base rate of duty on total imports of pig iron not containing more than 0.04 percent phosphorus was equivalent to 3 percent ad valorem, and the base rate on total imports containing more than 0.04 percent phosphorus was equivalent to 7 percent. There were no imports of pig iron containing dutiable alloys in that year. In 1938 and 1937, when there were small imports (less than 1,000 tons) of pig iron containing vanadium, the full rates of duty on all imports of pig iron containing dutiable alloy were equivalent to 17 percent and 24 percent, respectively, as compared with an equivalent ad valorem of 6 percent in 1938 and 8 percent in 1937 on pig iron not containing dutiable alloy. In 1936, when there were small imports of pig iron containing vanadium, tungsten, and chromium, the full rate of duty on all imports containing dutiable alloys was equivalent to 24 percent as compared with an ad valorem equivalent of 8 percent on pig iron not containing dutiable alloys.

## Comment

Pig iron is a product of the blast furnace and is used, generally with iron and steel scrap, in making steel ingots and other ferrous products. As the following table shows, most of the pig iron is for the maker's own use and is consumed in the same plant where it is produced; the balance (merchant pig iron) is sold in the open market.

Pig iron: Capacity and production for makers' use, and for sale by grades, 1937-39 and 1943-44

(Short tons)

| | 1937 | 1938 | 1939 | 1943 | 1944 |
|---|---|---|---|---|---|
| Capacity Jan. 1 | 54,521,529 | 55,721,792 | 55,265,414 | 62,966,530 | 66,400,970 |
| Production: | | | | | |
| Makers' use | 33,179,335 | 17,462,083 | 30,453,073 | 51,672,076 | 52,986,171 |
| For sale: | | | | | |
| Basic, Bessemer and low phosphorus | 2,424,244 | 825,465 | 1,300,395 | 4,921,070 | 3,621,293 |
| Foundry | 2,751,505 | 1,509,952 | 1,767,445 | 1,882,162 | 1,948,514 |
| Malleable | 2,044,008 | 960,018 | 1,223,552 | 2,232,690 | 2,340,818 |
| All other | 66,055 | 14,080 | 64,217 | 102,672 | 110,643 |
| Total | 7,285,812 | 3,309,515 | 4,355,609 | 9,140,594 | 8,021,268 |
| Percent of total output | 18 | 16 | 13 | 15 | 13 |

Source: American Iron and Steel Institute.

Pig iron for the maker's use is produced in the blast furnaces of large integrated iron and steel concerns and then taken in molten form to mixers for distribution to the open-hearth furnaces and Bessemer converters. A small part of the output, consisting of foundry iron, is similarly carried in a molten state to the casting department for direct castings.

PIG IRON-Continued

Merchant pig iron is produced both by the integrated steel producers and by independent merchant-iron producers. It is first cast into pigs and then sold to foundries or to steel mills which do not make their own pig iron. Before the war about two-thirds of the merchant pig iron produced was of foundry and malleable grades and the rest was principally of steel-making grades. During the war pig iron of steel-making grades increased considerably in importance, constituting as much as 54 percent of the total output of merchant pig iron produced in 1943.

Independent merchant producers specialize in the production of foundry and malleable grades of iron and market the whole of their output. Integrated steel concerns generally specialize in the production of steel-making grades and sell only that portion of their output which is not required in their steel-making operations. Thus, when demand for steel is low, these companies usually have more pig iron for sale than when it is high.

Because of a decline in the importance of cast iron articles as compared with those of steel, total production of merchant pig iron now constitutes a smaller part of the total output of pig iron than in the past. Whereas merchant pig iron constituted 22 percent of the total output in 1929, it was only 13 percent in 1939 and in 1944. This downward trend is likely to continue.

Independent merchant producers supplied almost the entire demand of the open market before World War I. Since then their number and absolute importance has steadily declined as a result of competition from domestic integrated producers and from imports. On January 1, 1944, the independent merchant producers owned only about 6 percent of the total United States capacity for making pig iron.

During the war there was a large expansion in United States capacity for producing pig iron (see table above); some of the largest and most efficient blast furnaces, financed by the Government, were added to the productive facilities of large integrated concerns. Several of them are located near coastal areas where most of the imported pig iron was consumed before the war. Most of these furnaces are likely to be acquired by their present operators, who will thereby be in a much stronger position than before the war to compete not only with the domestic independent merchant producers but also with the foreign producers selling in the domestic market.

The domestic iron and steel industry relies almost exclusively on domestic production for its supply of pig iron; imports in the past have never offered any serious competition to domestic production in the inland markets where the bulk of the pig iron is consumed. In the decade preceding World War II, imports ranged from 2 to 7 percent of the domestic consumption of merchant pig iron and in most years they were less than 1 percent of the total United States consumption of pig iron.

The bulk of the prewar imports was of grades suitable for iron castings, although some was for making steel. The principal markets for imports were at or near the North Atlantic seaboard, particularly in the vicinity of Philadelphia, where such imports competed chiefly with pig iron produced in that region. Small quantities of special charcoal or alloy grades of Swedish and Norwegian pig iron, commanding a high price, were occasionally marketed farther inland. Imports containing more than 0.04 percent phosphorus came principally from British India and from the Netherlands and greatly exceeded imports containing not more than 0.04 percent. The latter came largely from Canada and Sweden. Pig iron from British India sold at about the same price as domestic pig iron, while that from the Netherlands usually sold below the domestic. Domestic consumption of low-phosphorus and alloy grades (as specified in paragraph 301) usually amounts to only about 1 percent of total United States consumption of pig iron of all grades.

PIG IRON-Continued

The small volume of imports was due largely to the fact that productivity of labor in the blast furnaces (and in the iron and steel industry in general) in the United States was sufficiently greater than in foreign countries to offset almost entirely the higher wage rates paid to United States iron and steel workers. It has been estimated by the U. S. Tariff Commission that in 1935 production of pig iron per worker in the United States was 1,906 tons, as compared with 819 tons in France, 790 tons in Belgium, 706 tons in Luxemburg, and 498 tons in Great Britain. Since then, and especially during the war, productivity of labor in the United States has greatly increased through the installation of larger and more efficient units. Between 1935 and 1940 output per man hour in blast furnaces, steel works, and rolling mills increased by almost 25 percent. Wage rates have also increased over a period of years, but the cost of labor per unit of pig iron output has not been affected much by these changes.

What the future competitive position of foreign pig-iron-producing countries will be in the United States and other overseas markets is difficult to predict. The iron and steel industries of many major producing countries have suffered much damage during the war. On the other hand, the iron and steel industries of certain countries which were important suppliers of the United States market before the war have either suffered little or no damage or have grown as a result of the war. Productivity of labor in most continental European countries at least in the next few years is likely to be less than before the war, but wage rates may or may not be lower.

Presumably, the Netherlands industry has suffered considerable damage, but after repairs are made it probably will be able to export appreciable quantities of pig iron during the immediate postwar years. In the long run it may regain the position in the American market it held before the war, but there seems little reason to expect its position to be stronger. Nor is there any reason to anticipate that any other European country will have significant quantities of pig iron for export overseas.

The steel industry of India was making rapid progress before and during the war. In the prewar period most of the pig iron produced was consumed in India itself, although exports to Japan were considerable and much in excess of those to the United States. It is possible that imports of pig iron into the United States from India will eventually be resumed on a scale comparable to that of prewar years, or even larger in view of the reduction in India's exports to Japan.

Canada will probably continue to supply some pig iron to the United States, perhaps in somewhat larger quantities than before and during the war. These imports are principally consumed in the Detroit and Buffalo areas. Canada's productive capacity for pig iron and ferro-alloys increased from 1,772,000 tons in mid-1938 to 2,698,000 tons on January 1, 1945, an increase of 52 percent, and actual output of pig iron more than doubled between 1939 and 1943. A similar expansion in the pig-iron and steel industry of Canada took place in World War I, after which the industry's capacity and output declined to much lower levels. There is little reason to believe that the developments in the recent past or in the foreseeable future will alter appreciably the trade relations between Canada and the United States with respect to pig iron.

The additional rates on certain alloying metals contained in pig iron were introduced in 1930, in part to compensate for the rates in paragraph 302 and in part to prevent importation of these alloy metals duty-free. Any adjustment of the rates in paragraph 301 should be kept consistent with the rates in paragraphs 302 and 305 and perhaps other paragraphs.

PIG IRON-Continued

Pig iron: United States imports for consumption by kind with principal sources, 1939

| Kind 1/ | Total value | Principal sources |
|---|---|---|
| Not containing dutiable alloy: | | |
| Not containing more than 0.04 percent phosphorus | $117,888 | CANADA, $107,757; Sweden, $10,081; Denmark, $50 |
| Containing more than 0.04 percent phosphorus | 545,203 | INDIA, $350,024; NETHERLANDS, $127,467; CANADA, $65,015; Brazil, $2,697 |

1/ Imports of grades containing dutiable alloy were nil in 1939 and very small in all prior years; during the period 1930-38, Norway was the sole supplier in all years but one, in which year the Soviet Union also supplied small quantities.

Source: Official statistics of the U. S. Department of Commerce.

# ALLOY PRODUCTS (EXCEPT GRANULAR OR SPONGE IRON) CLASSIFIED IN PARAGRAPH 301--ADDITIONAL DUTIES

Stat. import classes (1939): 6003.4, 6003.5, 6004.1, 6004.5, 625.20

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Canada | NORWAY | |
| | Quantity (long tons) | | | | | |
| 1937 | Not available 1/ | Not available 1/ | 876 | 26 | 850 | |
| 1938 | | | 860 | 10 | 850 | |
| 1939 | | | 60 | 60 | - | |
| 1943 | | | 2/ 6 | 2/ 3 | - | |
| | Value (dollars) | | | | | |
| 1937 | Not available 1/ | Not available 1/ | 42,920 | 6,701 | 36,219 | |
| 1938 | | | 53,370 | 1,783 | 51,587 | |
| 1939 | | | 5,521 | 5,521 | - | |
| 1943 | | | 2/ 538 | 2/ 265 | - | |

1/ Production is, and exports probably are, much larger than imports.
2/ Free as imported scrap under Public Law 497, 77th Congress. Chile and Cuba were the other sources in 1943.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| | Per pound of alloy content | | |
| Par. 301 | | | |
| Alloy content of iron in pigs and iron kentledge, spiegeleisen containing more than 1 per centum of carbon, wrought and cast scrap iron, scrap steel, hammer scale, roll scale, and mill scale: | | | |
| Vanadium content in excess of one-tenth of 1 percent | $1 | $1 | NORWAY |
| Tungsten content in excess of two-tenths of 1 percent | 72¢ | 72¢ | do. |
| Molybdenum content in excess of two tenths of 1 percent | 65¢ | 65¢ | do. |
| Chromium content in excess of two-tenths of 1 percent | 3¢ | 3¢ | do. |

1/ The rates shown are additional to the base rates on the products enumerated (see separate digests).

Note.- The ad valorem equivalents of the additional specific rates on all imports in 1937-39 subject to such additional rates were as follows: $1 per pound, equivalent to 15 percent ad valorem (i.e., in relation to the total value of the alloyed product, including the value of the basic iron or steel); 72¢ per pound, equivalent to 3 percent; 65¢ per pound, equivalent to 1 percent; and 3¢ per pound, equivalent to 1 percent.

ALLOY PRODUCTS (EXCEPT GRANULAR OR SPONGE IRON) CLASSIFIED IN PARAGRAPH 301 - ADDITIONAL DUTIES - Continued

Comment

Trade reports indicate that considerable quantities of iron and steel scrap and scale containing certain alloys (especially tungsten) were imported under paragraph 301 of the Tariff Act of 1922 at nominal rates of duty. On the other hand, if these alloys had been imported in other products under the provisions of paragraphs 302 or 305 of the act of 1922, they would have been subject to relatively high rates of duty. The additional specific rates on vanadium, tungsten, molybdenum, and chromium content of articles were imposed for the first time in paragraph 301 of the 1930 Act. As indicated above, imports of products containing such alloys and dutiable under that paragraph have been small in recent years.

Any adjustments in these specific rates preferably should be effected in conjunction with changes in the rates on alloying ores, ferro-alloys, alloy steels, and other alloy products. The additional rates of paragraph 301 are compensatory for those on alloys contained in materials and products dutiable under paragraph 302, and similar to the specific rates provided for in paragraph 305. Action taken under paragraph 301 should also be related to any action taken under some of the duty brackets of paragraphs 344 and 352.

The imports of alloy pig iron and alloy iron or steel scrap subject to additional duties in 1937-39 were as follows:

Products of paragraph 301 (except granular or sponge iron) containing dutiable alloy: United States imports for consumption, by kind with principal sources, 1937-39

| Kind and year | Total value | Principal sources |
|---|---|---|
| Pig iron: | | |
| 1937 | $36,219 | NORWAY, $36,219. |
| 1938 | 51,587 | NORWAY, $51,587. |
| 1939 | - | - |
| Scrap: | | |
| 1937 | 6,701 | Canada, $6,701. |
| 1938 | 1,783 | Canada, $1,783. |
| 1939 | 5,521 | Canada, $5,521. |

Source: Official statistics of the U. S. Department of Commerce.

# IRON AND STEEL SCRAP

Stat. import classes (1939): 6004.0 and 6004.1

United States consumption, exports, and imports, 1937-39 and 1943

| Year | Consumption | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Sweden | Cuba |
| | Quantity (long tons) | | | | | |
| 1937 | 38,006,272 | 4,048,102 | 81,640 | 76,512 | 504 | 2,446 |
| 1938 | 21,344,934 | 2,974,375 | 24,451 | 23,680 | 66 | 388 |
| 1939 | 32,434,407 | 3,558,551 | 29,492 | 27,208 | 497 | - |
| 1943 | 55,045,496 | 47,273 | 1/ 128,024 | 95,251 | - | 15,170 |
| | Value (dollars) | | | | | |
| 1937 | Not available | 76,563,166 | 1,153,257 | 1,064,747 | 30,422 | 34,000 |
| 1938 | | 44,926,926 | 281,240 | 269,167 | 4,724 | 5,017 |
| 1939 | | 54,790,363 | 301,513 | 259,218 | 32,691 | - |
| 1943 | | 882,349 | 1/ 1,986,560 | 1,494,791 | - | 239,978 |

1/ Free under Public Law 497, 77th Congress.

Source: Consumption from statistics of the Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate 1/ | |
| | Cents per long ton | | |
| Par. 301 | | | |
| Iron and steel scrap: | | | |
| Not containing dutiable alloy | 75 | 75 | CANADA |
| Containing dutiable alloy | 2/ 75 | 2/ 75 | do. |

1/ Under Public Law 497, 77th Cong., effective March 1942, scrap is free of duty for the duration of the unlimited national emergency.

2/ Subject to additional duties for alloy content. These additional duties are compensatory for those on alloying materials and products in less advanced forms. Imports of alloy grades have been negligible.

Note.- The duty on imports in 1939 of scrap not containing dutiable alloy was equivalent to 8 percent ad valorem; on imports of scrap containing dutiable alloy the duty was equivalent to 14 percent ad valorem including, when applicable, additional duties on alloy content.

## Comment

The iron and steel industry ordinarily uses somewhat larger quantities of scrap than of pig iron in the over-all production of steel ingots and castings. Normally about one-half of the scrap consumed by the industry is produced as a byproduct of its own operations; the remainder is purchased from scrap dealers or from industrial consumers of iron and steel products. Most of the scrap is used in the manufacture of steel ingots and castings, but considerable quantities are used in the manufacture of iron castings and other iron products.

Since the cost of transporting scrap is high in relation to its value, United States foreign trade usually has been small. Imports have accounted for only a small fraction of 1 percent of domestic consumption. Exports were abnormally large from 1933 to 1941 because of military programs first in Asia and later in Europe. Future imports and exports probably will approximate normal peacetime (pre-1933) levels with this branch of the industry on an export basis as soon as the supply of scrap becomes plentiful.

Iron and steel scrap: United States imports for consumption, by kind, with principal sources

| Kind | Total value | Principal sources |
|---|---|---|
| Not containing dutiable alloy -- | $295,992 | CANADA, $253,697; Sweden, $32,691. |
| Containing dutiable alloy ------ | 5,521 | CANADA, $5,521. |

Source: Official statistics of the U. S. Department of Commerce.

HAMMER, ROLL, AND MILL SCALE

Stat. import class (1939): 6004.4-5

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 1/ | UNITED KINGDOM | Soviet Union | |
| | Quantity (long tons) | | | | | |
| 1937 | Not available 2/ | Not available 3/ | - | N | - | |
| 1938 | | | - | O | - | |
| 1939 | | | - | N | - | |
| 1943 | | | 4/ 70 | E | 4/ 70 | |
| | Value (dollars) | | | | | |
| 1937 | Not available 2/ | Not available 3/ | - | N | - | |
| 1938 | | | - | O | - | |
| 1939 | | | - | N | - | |
| 1943 | | | 4/ 1,000 | E | 4/ 1,000 | |

1/ Imports have been nil since 1931, when they amounted to 46 long tons valued at $23 (nonalloy grade), except for the small nondutiable imports reported for 1943. 2/ Large but undetermined. 3/ Exports probably small.
4/ Free as scrap under Public Law 497, 77th Congress.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| | Cents per long ton | | |
| Par. 301 | | | |
| Hammer scale, roll scale, and mill scale | 75 | 75 | UNITED KINGDOM |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 301 (see separate digest).
Note.- Imports have been too small and erratic to permit the determination of a representative ad valorem equivalent of the rate of duty.

Comment

Hammer, roll, and mill scale, first specifically provided for in the 1930 act, is oxide of iron resulting from heating iron or steel to a red heat in air. The scale contains from 70 to 75 percent iron and large quantities are charged into blast furnaces for the recovery of the iron content. Scale from high-alloy steels is chiefly valuable for its alloy content. The alloy content of scale from standard high-speed steel (about 18 percent tungsten) is recovered by electric furnace or chemical methods.

Trade reports indicate that before the passage of the 1930 act, when scale was first specifically provided for, and when additional duties for alloy content were first imposed as specified in paragraph 301, there were considerable tonnages of high-tungsten scale imported from Canada. This trade was discontinued after the 1930 act became effective.

## SPIEGELEISEN, NOT CONTAINING DUTIABLE ALLOY

(See also digest on spiegeleisen containing dutiable alloy, par. 301)

Stat. import class (1939): 625.15

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Norway | Nether-lands | |
| | Quantity (long tons) | | | | | | |
| 1937 | 134,983 | 1,725 | 16,841 | 15,466 | 1,375 | - | |
| 1938 | 24,939 | 247 | 17,248 | 16,783 | 400 | 65 | |
| 1939 | 84,739 | 2,923 | 38,264 | 37,470 | 750 | 44 | |
| 1943 | 134,071 | 3/ 280 | 2,905 | 2,905 | - | - | |
| | Value (dollars) | | | | | | |
| 1937 | 3,969,822 | 72,502 | 589,766 | 551,321 | 38,445 | - | |
| 1938 | 728,830 | 18,799 | 625,480 | 608,252 | 15,234 | 1,994 | |
| 1939 | 2,484,042 | 247,798 | 1,329,814 | 1,302,236 | 26,546 | 1,032 | |
| 1943 | 4,827,954 | 3/ 10,123 | 140,247 | 140,247 | - | - | |

1/ Tons shipped. 2/ Data cover exports of both spiegeleisen (exports of which are small) and ferromanganese, except in 1943. 3/ Includes 255 tons valued at $9,223 exported under lend-lease.

Source: Production from statistics of the U. S. Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per long ton | | |
| Par. 301 | | | |
| Spiegeleisen (less than 30 percent manganese, more than 1 percent carbon, not containing dutiable alloy)-------- | 75 | 1/ 75 | CANADA |

1/ Rate bound in trade agreement with Canada, effective January 1939.

Note.- The duty on total imports in 1939 was equivalent to 2 percent ad valorem.

### Comment

Spiegeleisen, an alloy of iron and manganese containing about 25 percent manganese, is manufactured in blast furnaces. It is consumed exclusively by the steel industry, mainly in the manufacture of high-carbon steel by the Bessemer process. About six furnaces in the United States regularly manufacture spiegeleisen, and four of these are owned by the major steel companies. However, if a demand arises for more of this material, additional blast furnaces could easily be converted to producing it. Electric furnace capacity is also available, but to date has never been utilized for this purpose. Substantial amounts of electric furnace low-carbon spiegeleisen could probably be produced in this country as large deposits of low-grade manganese ore exist in the West and Northwest in areas adjacent to cheap electric power.

Imports normally supply about 30 percent of domestic requirements (on a quantity basis) and come mainly from Canada, with only minor amounts from Norway. The imported material, manufactured in electric furnaces, has a low-carbon content

SPIEGELEISEN, NOT CONTAINING DUTIABLE ALLOY-Continued

compared with the domestic blast-furnace high-carbon product, and can be used to a limited degree as a substitute for ferromanganese. Exports of spiegeleisen are not separately classified but are known to be small (see above table for combined exports of spiegeleisen and ferromanganese).

Although approximate apparent consumption rose 36 percent from 1939 to the peak war year of 1942, imports fell 95 percent, while domestic production increased 96 percent. The abrupt decline in imports was no doubt due to the heavy armament requirements for this alloy in Canada, the former principal supplier of United States imports.

SPIEGELEISEN, CONTAINING DUTIABLE ALLOY
(See also digest on Spiegeleisen not containing dutiable alloy, paragraph 301)

Stat. import class (1939): 625.20

United States production, exports, and imports for consumption, 1937-39 and 1943

| Year | Production | Domestic exports | Imports |
|---|---|---|---|
| | Value (dollars) | | |
| 1937 | Not available | Not available | None (See text) |
| 1938 | | | |
| 1939 | | | |
| 1943 | | | |

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | Cents per long ton | | |
| Par. 301 | | | |
| Spiegeleisen, containing dutiable alloy | 75 | 1/ 75 | CANADA |

1/ Bound in trade agreement with Canada, effective January 1939. A charge is added to the basic rate for alloy content in excess of specified amounts.

Note.- If there were imports the duty would probably be equivalent to 2 or 3 percent ad valorem.

## Comment

Domestic production, exports, and consumption data are not available. Since 1930, when this classification was established, only 50 tons, valued at $1,650, have been imported. These imports were from Canada (in 1934).

Spiegeleisen is used almost wholly in making Bessemer steel, which is rarely if ever produced in alloy grades.

It seems unlikely that spiegeleisen of the type specified is made or used in the United States, except perhaps for experimental purposes.

Since the additional duties for alloy content specified in paragraph 301 are compensatory for the duties levied upon alloying materials under paragraph 302, action under either paragraph should be accompanied by similar action under the other.

FERRO-ALLOYING ORES, METALS, AND ALLOYS
(Summary Digest)

Par. No. 302
UNITED KINGDOM, SOVIET UNION, BRAZIL, UN. OF SO. AFRICA, CUBA, CHINA, NORWAY, CANADA, FRANCE

Stat. import class (1939): Various

United States production, exports, and imports, 1937-39 and 1943

| | 1937 | 1938 | 1939 | 1943 |
|---|---|---|---|---|
| | Quantity (1,000 pounds 1/) | | | |
| Production (See text) | n.a. | n.a. | n.a. | n.a. |
| Exports (See text) | n.a. | n.a. | n.a. | 2/ 103,091 |
| Imports for consumption from-- | | | | |
| Total all countries | 1,111,246 | 595,585 | 808,026 | 3/1,509,381 |
| GOLD COAST | 291,530 | 143,113 | 275,002 | 225,579 |
| NORWAY | 44,611 | 24,905 | 48,734 | - |
| SOVIET UNION | 418,288 | 180,708 | 154,294 | 4,683 |
| CUBA | 126,301 | 137,837 | 115,849 | 203,585 |
| India 4/ | 81,812 | 29,390 | 102,046 | 465,340 |
| CHINA | 4,234 | 623 | 1,065 | 9,141 |
| Netherlands | 632 | 13,088 | 17,863 | - |
| BRAZIL | 79,532 | 29,808 | 43,678 | 337,604 |
| CANADA | 11,827 | 1,410 | 2,656 | 22,956 |
| FRANCE | 2,705 | 3,126 | 2,800 | - |
| UNION OF SOUTH AFRICA | 11,143 | 19,487 | 23,735 | 117,642 |
| UNITED KINGDOM | 464 | 30 | 49 | 1 |
| | Value (1,000 dollars) | | | |
| Production | n.a. | n.a. | n.a. | n.a. |
| Exports | n.a. | n.a. | n.a. | 2/ 10,655 |
| Imports for consumption from-- | | | | |
| Total all countries | 17,031 | 10,098 | 13,668 | 3/ 49,650 |
| GOLD COAST | 2,942 | 1,501 | 3,019 | 3,715 |
| NORWAY | 1,725 | 1,030 | 2,229 | - |
| SOVIET UNION | 3,960 | 2,662 | 2,204 | 73 |
| CUBA | 2,186 | 2,242 | 1,690 | 5,418 |
| India | 679 | 237 | 1,055 | 5,531 |
| CHINA | 2,225 | 482 | 717 | 11,025 |
| Netherlands | 17 | 404 | 562 | - |
| BRAZIL | 597 | 220 | 367 | 6,638 |
| CANADA | 777 | 140 | 252 | 1,516 |
| FRANCE | 177 | 205 | 177 | - |
| UNION OF SOUTH AFRICA | 117 | 163 | 176 | 1,714 |
| UNITED KINGDOM | 136 | 31 | 47 | 5/ |

1/ Gross weight used where metal content not shown in imports.
2/ Includes 71,710 thousand pounds valued at 5,659 thousand dollars exported under lend-lease.
3/ Includes 454,699 thousand pounds valued at 29,770 thousand dollars--free for Government use. 4/ Includes Burma in 1937. 5/ Less than $500.
Source: Official statistics of the U. S. Department of Commerce.

FERRO-ALLOYING ORES, METALS, AND ALLOYS--(SUMMARY DIGEST)-Continued

| | United States tariff | | Ad valorem equivalent | Proposed negotiating country |
|---|---|---|---|---|
| | Act of 1930 | 1945 rate | 1939 | |
| Par. 302 | (Per pound of metal content | | (Percent | |
| (a) Manganese ore containing over 10 but less than 35 percent manganese | 1¢ | ½¢ 1/ | 77 | UNITED KINGDOM, UN. OF SO. AFRICA, BRAZIL |
| (a) Manganese ore containing 35 percent and over manganese | 1¢ | ½¢ 1/ | 43 | UNITED KINGDOM, U.S.S.R., BRAZIL |
| (c) Tungsten ore and concentrates | 50¢ | 50¢ | 74 | CHINA, CUBA |
| (d) Ferromanganese containing 1 percent and less than 4 percent carbon | 1-7/8¢ | 1-7/8¢ | 45 | NORWAY |
| (d) Ferromanganese containing not less than 4 percent carbon | 1-7/8¢ | 1¢ 2/ | 36 | NORWAY, CANADA |
| (e) Ferromanganese containing not over 1 percent carbon | 1-7/8¢ + 15% ad val. | 1-7/8¢ + 15% ad val. | 33 | NORWAY |
| (e) Manganese silicon over 45 percent silicon | 1-7/8¢ + 15% ad val. | 1-7/8¢ + 15% ad val. | 71 | NORWAY |
| (g) Tungsten: Metal, carbides, combinations of metal or carbide | 50% ad val. | 50% ad val. | 3/ | UNITED KINGDOM |
| (g) Tungstic acid and all other compounds, n.s.p.f. | 60¢ + 40% ad val. | 60¢ + 40% ad val. | 50 | UNITED KINGDOM |
| (h) Ferrotungsten, ferrochromium tungsten, other alloys of tungsten, n.s.p.f. | 25% ad val. | 25% ad val. | n.a. | UNITED KINGDOM |
| (i) Ferrosilicon, 8 to 30 percent silicon | 2¢ | 1¢ 4/ | 10 | CANADA |
| (i) Ferrosilicon, 30 to 60 percent silicon | 2¢ | 2¢ | 27 | CANADA |
| (i) Ferrosilicon, 60 to 80 percent silicon | 3¢ | 3¢ | 33 | CANADA |
| (i) Ferrosilicon, 80 to 90 percent silicon | 4¢ | 4¢ | 48 | CANADA |
| (i) Ferrosilicon, 90 percent or more silicon | 8¢ | 8¢ | 64 | CANADA |
| (k) Chromium metal | 30% ad val. | 25% ad val. 5/6/ | 27 | UNITED KINGDOM, NORWAY |
| (k) Ferrochrome containing 3 percent or more of carbon | 2½¢ | 1¼¢ 4/5/ | 13 | CANADA |
| (l) Boron carbide | 25% ad val. | 12½% ad val. 4/ | - | CANADA |
| (l) Manganese copper | 25% | 25% | | |
| (m) Ferrozirconium and zirconium-ferro-silicon | 25% ad val. | 25% ad val. | - | NORWAY |
| (m) Ferrotitanium, ferrovanadium, ferro-uranium | 25% ad val. | 15% ad val. 2/ | - | CANADA |

FERRO-ALLOYING ORES, METALS, AND ALLOYS--(SUMMARY DIGEST)-Continued

| | United States tariff | | Ad valorem equivalent | Proposed negotiating country |
|---|---|---|---|---|
| | Act of 1930 | 1945 rate | 1939 | |
| | Per pound of metal content | | Percent | |
| (n) Calcium metal | 25% ad val. | 25% ad val. | - | FRANCE |
| (n) Barium, boron, columbium or niobium, strontium, tantalum, thorium, titanium, uranium, vanadium, and zirconium metals | 25% ad val. | 25% ad val. | - | NORWAY |
| (n) Alloys of two or more of the metals, barium, boron, calcium, columbium or niobium, strontium, tantalum, thorium, titanium, uranium, vanadium, and zirconium metals | 25% ad val. | 25% ad val. | - | UNITED KINGDOM |
| (n) Alloys, n.s.p.f., of one or more of the foregoing metals with one or more of the metals aluminum, chromium, cobalt, copper, manganese, nickel, or silicon | 25% ad val. | 25% ad val. | - | NORWAY |
| (o) Silico-spiegel | 25% ad val. | 25% ad val. | | |
| (o) Alloys used in the manufacture of steel or iron, n.s.p.f.: | | | | |
| Containing not less than 28% iron, and not less than 18% of aluminum, 18% silicon, and 18% manganese | 25% ad val. | 12½% ad val. 7/ | - | CANADA |
| Other | 25% ad val. | 25% ad val. | - | CANADA |
| (p) Cerium metal | $2.00 | $2.00 | 8/ | UNITED KINGDOM |
| (q) Ferrocerium and other cerium alloys | $2 25% ad val. | $2 25% ad val. | 124 | UNITED KINGDOM, CANADA |

1/ Trade agreement with Brazil, effective January 1936.
2/ Trade agreements with Canada, effective January 1936 and January 1939.
3/ Metal, 107 percent; combinations, 61 percent.
4/ Trade agreement with Canada, effective January 1939.
5/ Trade agreement with Sweden, effective August 1935.
6/ Trade agreement with the United Kingdom, effective January 1939.
7/ Trade agreement with Switzerland, effective February 1936.
8/ No imports recorded.

## Comment

The separate digests under this group cover most of the products provided for in paragraph 302. They consist of ores and concentrates; additive alloys, including the ferro-alloys; a number of metals, some used as such; and a few compounds.

The ores and concentrates are the raw materials for some of the alloys and metals and most of the alloys become constituents of finished alloys. Most of the products are indispensable in the metallurgical industries where they serve two

important purposes. Many are used as cleansing agents to remove undesirable impurities and thus improve the quality of the finished product; others impart improved physical characteristics such as hardness, toughness, strength, corrosion resistance, and workability. Some serve both purposes.

The United States is deficient in many of the ores, notably manganese and tungsten, two of the most important. A substantial number such as beryl, columbium, and tantalum ores, are rare minerals not mined in the United States. It is, however, a very large manufacturer of most of the alloys of these materials, especially the various ferro-alloys.

In the United States (as elsewhere) some of the alloys, notably high-carbon ferromanganese, are made in the iron blast furnace, but most are produced by the electrometallurgical industry. The blast furnace alloys are made in the important steel-producing areas of the United States and the electric furnace products wherever the cheapest electric energy is available; the Tennessee Valley, New York, and West Virginia areas are especially important. Recently built hydroelectric plants in the Pacific Northwest and in California should be of increasing importance in these industries, as the power costs are reported to be low.

In weight and value, the ores and concentrates of manganese and tungsten are the most important imports under discussion. Domestic production of these is small, especially of manganese, and most requirements must be supplied by imports. The principal sources of manganese ore are South America, Asia, and Africa, while tungsten is imported from China and Bolivia.

Imports of alloys have come mostly from countries with cheap electric power, notably Canada and Norway, where there are American-owned and operated electric-furnace plants. Other contributing countries have been France, Germany, Switzerland, Italy, and the Netherlands. There are hundreds of additive alloys, many of them experimental, very expensive, and hence in small demand. Many are made to purchasers' specifications and the need for prompt delivery restricts both import and export trade, except with Canada.

During World War II domestic capacity to produce alloys and alloying metals was greatly expanded. Canadian production was also increased to meet large wartime demand and to supplant loss of imports from the principal European producers. These two factors will probably influence future imports. The foreign industry has been at a disadvantage in supplying specialty alloys, as it has been necessary to maintain large and varied stocks to meet consumer demand. Domestic and Canadian producers, with their expanded capacity, should be in a position to supply specialty alloys on short notice without maintaining large stocks.

The consumption of all the products under consideration is determined by the production of steel and the major nonferrous metals and alloys, in which nearly all of the consumption takes place. They are essential, not subject to much substitution, and will be used in normal ratios almost irrespective of any price changes which might be brought about by changes in rates of duty.

Rates of duty are relatively unimportant in influencing the trade in ores of essential minerals not produced here in adequate quantities, as they must be imported in normal volume more or less regardless of their price. A likely exception is tungsten ore, since most of the domestic mines which produce it are nearly marginal at the usual peacetime prices.

The rates of duty on metals and alloys are much more important in influencing trade. In making any adjustments in duty it would be appropriate to maintain approximately the existing compensatory relationships.

FERRO-ALLOYING ORES, METALS, AND ALLOYS--(SUMMARY DIGEST)-Continued

Ferro-alloys: United States imports for consumption, by kinds, and principal sources, 1939

| Item | Total value | Principal sources |
|---|---|---|
| Manganese ore | $8,498,050 | GOLD COAST, $3,019,368; SOVIET UNION, $2,204,304; India, $1,054,718, CUBA, $1,689,547 |
| Ferruginous ore | 130,009 | UNION OF SOUTH AFRICA, $130,009 |
| Tungsten ore and concentrate | 1,413,000 | CHINA, $717,000; Bolivia, $224,000; Mexico, $130,000 |
| Ferromanganese: | | |
| Containing not over 1% carbon | 119,749 | NORWAY, $119,749 |
| Containing 1/4% carbon | 1,375,912 | NORWAY, $1,280,058 |
| Containing 4% plus carbon | 1,439,553 | Netherlands, $561,509; NORWAY, $509,803 |
| Tungsten metal and compounds | 47,294 | UNITED KINGDOM, $41,440 |
| Ferrosilicon | 237,543 | CANADA, $237,543 |
| Chromium metal | 59,520 | NORWAY, $36,160; Germany, 1/ $18,196; UNITED KINGDOM, $5,164 |
| Ferrochromium plus 3% or more carbon | 646 | CANADA, $646 |
| Boron carbide | 5,849 | CANADA, $5,849 |
| Ferrozirconium and zirconium-ferro-silicon | 50,169 | NORWAY, $50,104 |
| Calcium silicide | 225,312 | NORWAY, $190,246; France, $35,066 |
| Calcium metal | 17,758 | FRANCE, $17,223 |
| Barium, boron, calcium, columbium, strontium, tantalum, thorium, titanium, uranium, vanadium, and zirconium metals; alloys n.s.p.f. of one or more of these metals with one or more of the metals of aluminum, chromium, cobalt, copper, manganese, nickel, or silicon | 39,264 | NORWAY, $39,137 |
| Silico-spiegel | 2/ | |
| Ferro-uranium | 2/ | |
| Ferrovanadium | 2/ | |
| Ferrotitanium | 77 | United Kingdom, $77 |
| Alloys, n.s.p.f. | 2,008 | United Kingdom, $1,997 |
| Alloys, n.e.s. | 400 | CANADA, $400 |
| Cerium metal and alloys | 1,184 | France, $997; UNITED KINGDOM, $45 |
| Manganese silicon over 45% manganese | 1,240 | NORWAY, $1,240 |
| Boron, boron, calcium, etc. | 2/ | |
| Alloys of two or more of these metals (barium, boron, calcium, etc.) | 1,610 | Canada, $1,610 |
| Manganese copper | 2,517 | NORWAY, $2,517 |

1/ Includes Austria. -- 2/ No imports recorded.
Source: Official statistics of the U. S. Department of Commerce.

MANGANESE ORE, FERRUGINOUS AND FERRO GRADES (SUMMARY DIGEST)
(See separate digests which follow on (1) ore containing over 10 but less than 35 percent manganese, and (2) ore containing more than 35 percent manganese)

Stat. import class (1939): 6211.0-1

United States production, exports, and imports, 1937-39 and 1943

| Year | Production (shipments) | Domestic exports | Imports for consumption from-- All countries | GOLD COAST 1/ | SOVIET UNION 1/ | CUBA 1/ | BRAZIL 1/ | UNION OF SO. AFRICA 2/ |
|---|---|---|---|---|---|---|---|---|
| | Quantity (1,000 long tons, gross weight) | | | | | | | |
| 1937 | 192 | n.a. | 974 | 255 | 384 | 123 | 78 | 17 |
| 1938 | 59 | n.a. | 514 | 127 | 166 | 131 | 30 | 30 |
| 1939 | 269 | n.a. | 658 | 243 | 135 | 106 | 43 | 34 |
| 1943 | 602 | 1/ 4 | 3/ 1,360 | 194 | 4 | 189 | 333 | 113 |
| | Value (1,000 dollars) | | | | | | | |
| 1937 | 1,842 | n.a. | 10,715 | 2,942 | 3,960 | 2,186 | 597 | 92 |
| 1938 | 839 | n.a. | 7,047 | 1,501 | 2,662 | 2,242 | 220 | 127 |
| 1939 | 1,729 | n.a. | 8,628 | 3,019 | 2,204 | 1,690 | 367 | 176 |
| 1943 | 9,093 | 1/ 257 | 3/ 23,494 | 3,715 | 73 | 5,409 | 5,065 | 1,694 |

1/ Manganese ore having a manganese content 35 percent and over only.
2/ Both grades of ore, 10 to less than 35 percent of manganese, and 35 percent and over of manganese.
3/ Free for Government use, 410 thousand tons, valued at 6,326 thousand dollars.
Source: Production from official statistics of the U. S. Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | Cents per pound manganese content | | |
| Par. 302(a) | | | |
| Manganese ore containing over 10 but less than 35 percent manganese | 1 | 1/ 1/2 | UNITED KINGDOM, UN. OF SO. AFRICA, BRAZIL |
| Manganese ore containing 35 percent and over manganese | 1 | 1/ 1/2 | UNITED KINGDOM, SOVIET UNION, BRAZIL, CUBA |

1/ Trade agreement with Brazil, effective January 1936.
Note.- The duty on imports in 1939 was equivalent to 77 percent ad valorem on ore containing over 10 but less than 35 percent manganese and 43 percent ad valorem on ore containing 35 percent and over manganese. Duty-free ores are not included.

MANGANESE ORE, FERRUGINOUS AND FERRO GRADES (SUMMARY DIGEST)--Continued

Comment

The ores of manganese are classified in three grades according to the manganese content. The ore of greatest importance contains 35 percent or more manganese and is known as "Manganese ore" (proper), or as "ferro-grade ore." It consists of oxides of manganese and iron intimately mixed with silica. This ore is used principally by the steel industry, while minor amounts are consumed by battery and chemical manufacturers.

Ore carrying 10 but less than 35 percent manganese is termed "ferruginous manganese ore." This ore is used almost wholly by the steel industry, usually being converted into the alloy "spiegelcisen." The third grade of manganese ore commonly known as "manganiferous iron ore," contains less than 10 percent manganese and is used in the manufacture of manganese pig iron. This third grade is of minor importance and is not included in the scope of this report.

United States reserves of "manganese ore" (proper) are small, consequently production has always been low and imports correspondingly high (96 percent of consumption in 1939). Montana is the principal producing State but about 20 other States produce some ore. As domestic reserves of ferruginous manganese ore are large, the United States is not only the world's largest producer but also the largest consumer of this type of ore. Minnesota is the largest producer, followed by 12 or more States.

In 1939 imports were in the ratio by quantity of 20 of manganese ore (proper) to 1 of ferruginous ore; by value the ratio was about 65 to 1, the unit value of the high grade being $13.55 and that of the lower grade $4.24. In the above specified years, only one country, namely, the Union of South Africa, supplied ores of both grades.

Exports of domestic ores are confined chiefly to small lots of specially prepared high-grade manganese ore that is shipped to from 12 to 15 countries.

Ores of manganese: United States imports for consumption, by kinds, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Manganese ore | $8,498,050 | GOLD COAST, $3,019,368; SOVIET UNION, $2,204,304; CUBA, $1,689,547; India, $1,054,718; BRAZIL, $366,597; Philippine Islands, $89,784; Union of South Africa, $45,716 |
| Ferruginous ore | 130,009 | UNION OF SOUTH AFRICA, $130,009. |

Source: Official statistics of the U. S. Department of Commerce.

MANGANESE ORE--FERRUGINOUS (CONTAINING OVER 10 BUT LESS THAN 35 PERCENT MANGANESE)
(Manganese ore of metallurgical or battery grade is treated in a separate digest)

Stat. import class (1939): 6211.0

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 3/ | UNION OF SO. AFRICA | Egypt | Philippine Islands 4/ |
| | Quantity (long tons gross weight) | | | | | |
| 1937 | 151,955 | Not | 62,510 | 16,660 | 45,600 | 250 |
| 1938 | 33,620 | avail- | 30,050 | 30,050 | - | - |
| 1939 | 239,544 | able 2/ | 30,684 | 30,684 | - | - |
| 1943 | 418,677 | | 5/ 9,953 | - | 9,899 | - |
| | Value (dollars) | | | | | |
| 1937 | 778,349 | Not | 263,768 | 88,595 | 172,173 | 3,000 |
| 1938 | 157,580 | avail- | 127,430 | 127,430 | - | - |
| 1939 | 934,397 | able 2/ | 130,009 | 130,009 | - | - |
| 1943 | 1,814,651 | | 5/ 127,479 | - | 126,314 | - |
| | Unit value (dollars) | | | | | |
| 1937 | 5.12 | Not | 4.22 | 5.32 | 3.78 | 12.00 |
| 1938 | 4.69 | avail- | 4.24 | 4.24 | - | - |
| 1939 | 3.90 | able | 4.24 | 4.24 | - | - |
| 1943 | 4.33 | | 12.81 | - | 12.76 | - |

1/ Shipments from mines. 2/ Small, if any.
3/ No imports during the specified years from UNITED KINGDOM (Gold Coast) or BRAZIL.
4/ Duty-free. 5/ Free for Government use, 9,923 long tons, valued at $126,341.
Source: Production from statistics of the U. S. Bureau of Mines; imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound manganese content | | |
| Par. 302(a) Manganese ore, containing in excess of 10 percent metallic manganese | 1 | 1/ ½ | UNITED KINGDOM, U. OF SO.AFRICA BRAZIL |

1/ Trade agreement with Brazil, effective January 1936.
Note.- The duty of 1/2 cent per pound was equivalent on dutiable imports to 77 percent ad valorem in 1939 and to 14 percent in 1943.

MANGANESE ORE--FERRUGINOUS (CONTAINING OVER 10 BUT LESS THAN 35 PERCENT MANGANESE)--Continued

Comment

Ferruginous manganese ore is an intimate mixture of oxides of iron and manganese and is used in manufacturing spiegeleisen in blast furnaces. It is not to be confused with manganese ore containing over 35 percent of manganese (see separate digest).

The United States, possessing large reserves of this ore, is the world's largest producer and consumer. The ore is produced in about a dozen widely separated States, with Minnesota leading by a wide margin. Before the war consumption averaged about 270,000 long tons annually, of which domestic production supplied from 70 to 90 percent.

Under the present tariff act there were no imports of ferruginous manganese ore until the duty was reduced in 1936. Small shipments were received from Egypt in 1936. Thereafter the Union of South Africa became the major source. Exports are nonexistent, except possibly for occasional small lots exported to Canada.

## MANGANESE ORE--MANGANESE CONTENT 35 PERCENT AND OVER

(Manganese ore ranging from 10 to less than 35% manganese is treated in a separate digest)

Stat. import class (1939): 6211.1

United States production, exports, and imports, 1937-39 and 1943

| Year | Production shipments | Domestic exports 1/ | Imports for consumption from-- All countries | GOLD COAST | SOVIET UNION | India 2/ | BRAZIL | CUBA |
|---|---|---|---|---|---|---|---|---|
| | Quantity (1,000 long tons, gross weight) | | | | | | | |
| 1937 -- | 40 | n.a. | 912 | 255 | 384 | 70 | 78 | 123 |
| 1938 -- | 25 | n.a. | 484 | 127 | 166 | 25 | 30 | 131 |
| 1939 -- | 29 | n.a. | 627 | 243 | 135 | 90 | 43 | 106 |
| 1943 -- | 183 | 4 | 3/ 1,350 | 194 | 4 | 413 | 333 | 189 |
| | Value (1,000 dollars; imports represent foreign value) | | | | | | | |
| 1937 -- | 1,062 | n.a. | 10,452 | 2,942 | 3,960 | 679 | 597 | 2,186 |
| 1938 -- | 682 | n.a. | 6,919 | 1,501 | 2,662 | 237 | 220 | 2,242 |
| 1939 -- | 795 | n.a. | 8,498 | 3,019 | 2,204 | 1,055 | 367 | 1,690 |
| 1943 -- | 7,279 | 257 | 3/ 23,367 | 3,715 | 73 | 5,135 | 5,065 | 5,409 |
| | Unit value (per long ton) | | | | | | | |
| 1937 -- | $37.98 | - | $11.46 | $11.56 | $10.31 | $9.65 | $7.66 | $17.78 |
| 1938 -- | 26.92 | - | 14.31 | 11.83 | 16.03 | 9.30 | 7.42 | 17.06 |
| 1939 -- | 27.12 | - | 13.55 | 12.43 | 16.30 | 11.78 | 8.58 | 16.08 |
| 1943 -- | 39.74 | $67.80 | 3/ 17.31 | 19.18 | 17.97 | 12.42 | 15.19 | 28.61 |

1/ Small lots of specially prepared high-grade manganese ore are exported annually to 12 or 15 countries. The total amount exported, however, is small and was not separately recorded until 1942. 2/ Includes Burma in 1937.
3/ Free for Government use, 400 thousand tons valued at 6.2 million dollars. (Unit value $15.50)
Source: Production from statistics of the U. S. Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | (Per pound manganese content) | | |
| Par. 302(a) Manganese ore, containing in excess of 10% of metallic manganese | 1¢ | 1/ 1/2¢ | UNITED KINGDOM, SOVIET UNION, BRAZIL, CUBA |

1/ Trade agreement with Brazil, effective January 1936.

Note.- Imports from Cuba enter duty-free under commercial agreements between the United States and Cuba. Imports from the Republic of the Philippines are duty-free under the act of 1930. The duty on imports in 1939 was equivalent to 43 percent ad valorem, dutiable ore only.

### Comment

Manganese ore containing 35 percent or more metallic manganese (manganese ore proper) is usually classified into two distinct types: metallurgical ore, and battery or chemical ore. The first carries preferably about 50 percent manganese and is used in making metallic manganese and ferromanganese, both consumed by the steel industry. Battery or chemical ore must likewise have a high manganese content, but its physical properties and available oxygen content are of paramount importance. In 1943, 96 percent of all manganese ore consumed in the United States was absorbed by the steel industry, the balance being battery or chemical ore.

MANGANESE ORE—MANGANESE CONTENT 35 PERCENT AND OVER-Continued

Reports prepared for the War Department in 1924, and revised in 1932, indicated that known domestic reserves of metallurgical ore were sufficient for only 2 to 5 years normal requirements. This position remains unchanged today, as the new reserves developed in new or in previously known deposits just about offset the quantity of ore mined since 1932. Domestic production of metallurgical ore has always been small, and imports heavy. Domestic production of battery ore, however, is capable of filling all United States requirements, although limited amounts of higher grade battery ore are imported. The volume of battery ore produced varies from 16 percent of total manganese ore produced in 1937 to 27 percent in 1939. Metallurgical ore is produced in about a dozen States, Montana alone producing about half of the total output. Montana likewise is the principal source of battery ore, only minor amounts coming from California and Georgia.

The domestic manganese industry in peacetime is a relatively small one. The Bureau of Census reported 34 mines in operation in 1939. The total number of persons employed was 557, the hourly wage rate being 50 cents. Productivity amounted to .385 long ton of ore per man day, while the ore at the mine was valued at $18.67 per long ton.

During the war, as the result of premium prices paid by the Government, and other Government assistance, domestic production of manganese ore was increased approximately tenfold, a large part of the increase being in the metallurgical grade. However, domestic production was able to supply only a small fraction of the greatly increased consumption, and imports during the war years were on the average about twice as great as in the immediate prewar years.

In prewar years the imports of manganese ore came chiefly from the Gold Coast, Brazil, Cuba, the Soviet Union, and British India. American capital is invested in manganese mining in the first three of these countries. During the war transportation difficulties caused some reduction in imports from the Gold Coast and practical cessation of imports from the Soviet Union. Imports from Brazil, India, and Cuba, however, were greatly increased.

Exports of domestic ore have always been small, consisting of specially prepared high-grade chemical ore.

Previous to 1922, when manganese ore was duty-free, domestic consumers were dependent upon imports for about 94 percent of their requirements. The new 1922 tariff rate of 1 cent per pound manganese content on ore containing over 30 percent manganese proved a sufficient stimulus to producers to increase output, and this reached in 1925 a maximum of about 15 percent of total requirements. After 1925, however, domestic production again declined. In 1936 the tariff was lowered pursuant to the Brazilian trade agreement to 1/2 cent per pound manganese content on all ores containing over 10 percent manganese. In spite of the lower tariff, domestic production of metallurgical ore increased by reason of increase in total consumption resulting from improved business conditions. From 1922 until 1943, the value of the domestic production never exceeded the duty collected upon imports of manganese ore. During the war years, however, imports of foreign ore duty-free by the Government caused this position to change.

Since the major part of manganese ore is absorbed by the steel industry, the demand is governed almost entirely by the trend of steel production and has little relation to the price of manganese. It may be presumed, therefore, that variations in price that might result from changes in duty in either direction would have little or no effect on consumption.

The Bureau of Mines and the Geological Survey have in the past few years conducted extensive surveys in an attempt to find additional reserves of high-grade ore, but with little success. The Bureau has also conducted research to improve the methods of beneficiation of domestic low-grade ore. The results have not been very promising. The Bureau has succeeded, however, in developing a process for the manufacture of metallic manganese by electrolysis, utilizing low-grade ores. This metal can be substituted for ferromanganese in a large proportion of the requirements in the steel industry. The high cost of manufacture, however, has to be overcome before it will be readily accepted as a substitute for ferromanganese.

MANGANESE ORE--MANGANESE CONTENT 35 PERCENT AND OVER-Continued

Now that hostilities have ceased, it is probable that domestic production of the metallurgical grade of manganese ore will, at the present rate of duty, soon fall back to approximately the small prewar level (assuming that the Government takes no other measures to support the domestic industry in peacetime). A further reduction in the duty might result in the shutting down of some of the higher-cost mines, and a corresponding increase in imports (naturally small in percentage terms because of the dominance of imports in the consumption).

Past experience indicates that it would probably be impossible to build up a large domestic production of high-grade metallurgical manganese ore even if the duty were much higher than at present. Indications are that reserves of such ore are inadequate, and that any increase in current production would hasten their disappearance. If, as a national safeguard, it should be deemed desirable to provide in advance for large domestic production of manganese in the event of a possible future emergency, this can probably best be done by Government creation, or subsidization, of facilities for deriving manganese from low-grade ores. However, the most important safeguard for emergencies would appear to be in the maintenance of a very large stock pile of imported manganese ore. It might be desirable also for the United States Government to continue in peacetime its wartime practice of furnishing capital for development of manganese production in those foreign countries supplies from which would be least likely to be shut off in case of war.

Manganese ore: United States imports for consumption by kinds, with principal sources, 1940 1/

| Kind | Total value | Principal sources |
|---|---|---|
| Battery grade | $596,442 | GOLD COAST, $492,479; Union of So. Africa, $56,030; India, $41,952. |
| Other than battery: | | |
| Grade free | 3,686,978 | CUBA, $3,059,735; Philippine Islands, $627,243 |
| do. dutiable | 13,948,467 | GOLD COAST, $3,975,904; SOVIET UNION, $3,947,766; India, $2,281,928; Un. of So. Africa, $1,746,507; BRAZIL, $1,678,395. |

1/ New classification established January 1, 1940.

Source: Official statistics of the U. S. Department of Commerce.

Stat. import class (1939): 6232.0

United States production, exports, and imports, 1935-43

| Year | Production | Domestic exports | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries | CHINA | Bolivia |
| | Quantity (short tons tungsten content) | | | | |
| 1935 | 1,140 | Not available | 1/ 814 | 651 | - |
| 1936 | 1,243 | | 2/ 2,083 | 1,577 | 23 |
| 1937 | 1,666 | | 3/ 3,032 | 2,126 | 38 |
| 1938 | 1,450 | | 4/ 496 | 310 | 15 |
| 1939 | 2,040 | | 5/ 1,037 | 533 | 159 |
| Average, 1935-39 | 1,508 | | 1,492 | 1,039 | 47 |
| 1940 | 2,531 | | 6/ 3,480 | 979 | 905 |
| 1941 | 3,125 | | 7/ 5,775 | 8/ 3,288 | 9/ 1,462 |
| 1942 | 4,441 | | 10/ 7,166 | 11/ 1,910 | 12/ 3,389 |
| 1943 | 5,679 | | 9,723 | 13/ 4,571 | 14/ 2,549 |
| Average, 1940-43 | 3,944 | | 6,536 | 2,687 | 2,076 |
| | Value (1,000 dollars) | | | | |
| 1935 | 1,921 | Not available | 1/ 742 | 286 | - |
| 1936 | 2,324 | | 2/ 1,730 | 1,068 | 18 |
| 1937 | 4,094 | | 3/ 3,260 | 2,205 | 30 |
| 1938 | 3,161 | | 4/ 944 | 482 | 29 |
| 1939 | 4,402 | | 5/ 1,413 | 717 | 224 |
| Average, 1935-39 | 3,180 | | 1,618 | 952 | 75 |
| 1940 | 6,576 | | 6/ 5,714 | 1,716 | 1,414 |
| 1941 | 9,224 | | 7/ 11,252 | 8/ 6,584 | 9/ 2,774 |
| 1942 | 13,508 | | 10/ 16,539 | 11/ 4,319 | 12/ 7,618 |
| 1943 | 17,955 | | 24,544 | 13/ 11,025 | 14/ 6,449 |
| Average, 1940-43 | 11,816 | | 14,512 | 5,911 | 4,564 |

1/ Includes 408 tons valued at $357,943 imported duty-free for smelting, refining, and export.

2/ Includes 290 tons valued at $200,487 imported duty-free for smelting, refining, and export.

3/ Includes 252 tons valued at $320,380 imported duty-free for smelting, refining, and export.

4/ Includes 415 tons valued at $805,190 imported duty-free for smelting, refining, and export.

5/ Includes 295 tons valued at $414,862 imported duty-free for smelting, refining, and export.

6/ Includes 674 tons valued at $1,023,426 imported duty-free for smelting, refining, and export.

7/ Includes 14 tons valued at $21,168 imported duty-free for smelting, refining, and export.

8/ Includes 1,833 tons valued at $3,832,874 imported duty-free for Government use.

9/ Includes 105 tons valued at $180,629 imported duty-free for Government use.

10/ Includes 3 tons valued at $7,308 imported duty-free for smelting, refining, and export.

11/ Includes 1,785 tons valued at $4,004,271 imported duty-free for Government use.

12/ Includes 3,239 tons valued at $7,287,629 imported duty-free for Government use.

13/ Includes 4,404 tons valued at $10,724,663 imported duty-free for smelting, refining, and export.

14/ Includes 2,532 tons valued at $6,425,001 imported duty-free for smelting, refining, and export.

Source: Official statistics of the U. S. Department of Commerce.

TUNGSTEN ORE AND CONCENTRATES-Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound, tungsten content | | |
| Par. 302 (c): | | | |
| Tungsten ore and concentrates ------- | 50 | 50 | CHINA |

Unit value of United States production and imports and ad valorem equivalent of the duty, 1935-43

| Item | 1935 | 1936 | 1937 | 1938 | 1939 |
|---|---|---|---|---|---|
| Unit value, United States production (per pound of tungsten content) ------ | $0.843 | $0.935 | $1.229 | $1.091 | $1.079 |
| Foreign unit value, imports for consumption (per pound of tungsten content) ---------- | .456 | .426 | .538 | .952 | .482 |
| Ad valorem equivalent of duty, percent | 106 | 116 | 95 | 59 | 74 |

| Item | 1940 | 1941 | 1942 | 1943 |
|---|---|---|---|---|
| Unit value, United States production (per pound of tungsten content) ------ | $1.299 | $1.476 | $1.521 | $1.581 |
| Foreign unit value, imports for consumption (per pound of tungsten content) ---------- | .821 | .974 | 1.154 | 1.262 |
| Ad valorem equivalent of duty, percent | n.a. | 53 | 48 | 44 |

## Comment

The following minerals named in their order of importance in world production are sources of tungsten in tungsten ore: (1) wolframite, the iron manganese tungstate; (2) scheelite, the calcium tungstate; (3) ferberite, the iron tungstate; and (4) huebnerite, the manganese tungstate. Tungsten ores are usually milled (concentrated) near the mines and the resulting concentrates, which contain from 40 to 57 percent tungsten, are sold on the basis of tungsten trioxide content, the usual standard being 60 percent $WO_3$.

From 75 to 85 percent of the tungsten ore consumed in the United States is used in making ferrotungsten (in turn used for alloying steel) or is charged directly into the steel bath. The remainder goes into tungsten metal, tungsten carbide, and various tungsten chemicals. The chief uses of tungsten steel are in the manufacture of cutting tools, armor-piercing projectiles, magnet steels, and erosion-resisting gun liners. High-speed cutting tools containing tungsten are also made of stellite (an alloy of tungsten, cobalt, and chromium) and tungsten carbide. Tungsten metal is used for incandescent lamp filaments and electrical contact points.

During World War I the search for tungsten ore in this country resulted in the development of many properties, over 100 of which were producing or in the development stage in 1918. Following the war, accumulated stocks depressed the market and domestic mining was virtually abandoned for several years, but by 1925 it had recovered to about its prewar importance. With the advent of the depression, the domestic smelting industry adopted the procedure of importing ores under bond, free of duty, and exporting the resulting products; in previous years relatively small quantities of tungsten products were exported, usually with benefit of drawback. With the aid of increased prices, increasing domestic production has

supplied a substantial part of the gradually increasing domestic requirements since 1931.

The heavy war demand for tungsten resulted in increased mine production both in the United States and Latin America and stimulated the domestic search for and development of new ore bodies. Accompanying the large wartime requirements was a marked increase in the price of tungsten. The mine value of tungsten in the United States averaged $1.50 per pound for the period 1940-43 compared with $1.03½ from 1935-39 and $0.75 in the 1926-29 period. In the past, the world price has largely been determined by Chinese and other Far Eastern production and the domestic mine value of tungsten has usually been higher than the world price by about the amount of the United States import duty.

During the 1930s imports satisfied about half of the domestic demand. China provided 65 to 75 percent of the prewar imports, but during the war Bolivia and Argentina supplied important quantities. Under wartime conditions United States imports increased nearly as rapidly as domestic production and large stocks were accumulated. By October 1944 the Government stock pile contained 16,856 short tons (tungsten content) or an amount equivalent to 3 years' supply at the 1940 rate of consumption.

United States exports of tungsten products are in general the result of free entry of ores for treatment. However, small amounts of tungsten are exported in manufactures with benefit of drawback.

Asia normally produces about 75 percent of the world supply of tungsten, much of which comes from rich tin-tungsten deposits. From 1917 to 1929 China produced over 60 percent of the world supply, but since 1930 the Far Eastern output has been relatively smaller although increased production from Burma and the Federated Malay States almost made up the deficiency of Chinese sources. The mines of China are in the interior where transportation is difficult and, in the last 15 years, political and other disturbances have resulted in reduced output.

Portugal is the chief European producer, accounting for approximately 3 percent of the world total. Minor amounts come from the United Kingdom and Sweden.

The United States, Bolivia, and Argentina are the largest Western Hemisphere producers of tungsten ore and Peru, Chile, and Brazil export minor amounts. Australia and New Zealand and several mines in Africa also contribute a small share of the world total.

Except for the mine output of the United States, practically all tungsten ore enters into international trade. The net movement between continents in the prewar period was largely from Asia to Europe. During the 1940-45 war period much of the ore normally destined for Europe was diverted to the United States.

Over a considerable period the domestic consumption of tungsten has increased both absolutely and relatively, compared with steel, although this tendency has recently become less marked since molybdenum has been substituted wherever possible because of war shortages. Molybdenum is the chief competitor of tungsten in alloys having similar metallurgical, mechanical, and chemical properties. Although molybdenum tool steels may not be quite as long-wearing as high-tungsten tool steels, they are somewhat lower in cost, and consequently the relative availability of molybdenum acts as a restraining influence on any continued excessive price for tungsten. As long as the price of molybdenum remains substantially below that of tungsten, much of the wartime substitution may be continued in the postwar period. There are, however, possibilities of a much wider use for high-melting-point alloys containing tungsten in equipment such as superchargers and turbo-jet engines.

TUNGSTEN ORE AND CONCENTRATES-Continued

Since domestic tungsten ore bodies are, in general, small and of low grade, mining and milling costs are high. Without an artificial advantage such as the present tariff on imports, most domestic industry would probably be unable to compete with foreign ore in peacetime.

Stat. import classes (1939): 6212.1; 6212.2; 6212.3

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports 1/ | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | Netherlands | Czecho-slovakia | CANADA |
| | Quantity (long tons) | | | | | | |
| 1937 | 359,842 | 1,725 | 29,559 | 21,578 | 356 | 1,198 | 4,245 |
| 1938 | 223,720 | 247 | 26,258 | 13,068 | 7,332 | 3,850 | - |
| 1939 | 296,631 | 2,923 | 41,227 | 23,943 | 9,933 | 2,594 | 2/ |
| 1943 | 645,334 | 3/11,169 | 4/ 2,055 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | 30,696,748 | 72,502 | 2,163,616 | 1,447,177 | 17,033 | 57,919 | 426,759 |
| 1938 | 19,144,884 | 18,799 | 1,770,948 | 953,045 | 403,561 | 211,356 | - |
| 1939 | 24,137,211 | 247,798 | 2,935,214 | 1,909,610 | 561,509 | 162,091 | 50 |
| 1943 | 93,481,580 | 3/1,717,888 | 4/160,600 | - | - | - | - |

1/ Exports include spiegeleisen before 1943.
2/ Less than one-half ton.
3/ Includes 4,849 long tons valued at $825,896 exported under lend-lease.
4/ Free for Government use, imported from India.
Source: Production from statistics of the U. S. Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Per pound manganese content | | |
| Par. 302 | | | |
| Ferromanganese: | | | |
| (e) Containing not over 1 percent carbon | 1-7/8¢ 15% ad val. | 1-7/8¢ 15% ad val. | NORWAY |
| (d) Containing over 1 percent and less than 4 percent carbon | 1-7/8¢ | 1-7/8¢ | NORWAY |
| Containing not less than 4 percent carbon | 1-7/8¢ | 1/1¢ | NORWAY, CANADA |

1/ Trade agreements with Canada, effective January 1936 and January 1939. Rate specified in agreement is 3/8¢ per lb. of metallic manganese content plus 1¼ times duty on manganese ore; since the 1945 rate on ore was ½¢ lb. (as fixed by the 1936 trade agreement with Brazil) the rate on this ferromanganese is equivalent to 1¢ per lb.
Note.- The duties on imports in 1939 of the three classes were respectively equivalent to 45 percent, 36 percent, and 33 percent ad valorem.

## Comment

Ferromanganese, an alloy of manganese and iron containing 78 to 82 percent manganese, is used in the manufacture of low-carbon steel and special steels in the open-hearth furnace. Ferromanganese is manufactured, principally from foreign manganese ore, in either the blast furnace or the electric furnace. At least a dozen furnaces in the United States, located near the principal steel centers,

FERROMANGANESE-Continued

are engaged in its production. Domestic production before the war normally supplied about 90 percent of domestic requirements, the bulk being high-carbon material produced in the blast furnace.

Prewar imports were received from eight or more European countries and Canada. Imported ferromanganese is generally manufactured in the electric furnace and usually contains less impurities than the domestic material. Exports were not separately classified before 1943. It appears unlikely that the United States will export significant quantities of this product, as it can be made in other consuming countries fully as cheaply as in the United States.

Ferromanganese: United States imports for consumption, by kinds, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Containing not over 1 percent carbon | $119,749 | NORWAY, $119,749 |
| Containing over 1 percent and less than 4 percent carbon | 1,375,912 | NORWAY, $1,280,058; France, $92,448; Sweden, $3,356; Canada, $50 |
| Containing not less than 4 percent carbon | 1,439,553 | Netherlands, $651,509; NORWAY, $509,803; Czechoslovakia, $162,091; Poland and Danzig, $118,015; Yugoslavia, $55,056; Germany 1/, $24,622; France, $8,457 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# MANGANESE SILICON, OVER 45 PERCENT MANGANESE

Stat. import class (1939): 6212.7

United States production, exports, and imports for consumption, 1937-39 and 1943

| Year | Production | Domestic exports | Imports 1/ |
|---|---|---|---|
| | Quantity (pounds--manganese content) | | |
| 1937 | Not available | Not available | 78,591 |
| 1938 | | | - |
| 1939 | | | 37,172 |
| 1943 | | | - |
| | Value (dollars) | | |
| 1937 | Not available | Not available | 2,070 |
| 1938 | | | - |
| 1939 | | | 1,240 |
| 1943 | | | - |

1/ All from NORWAY.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 302(e) | | | |
| Manganese silicon containing over 45 percent manganese | 1-7/8¢ per lb. + 15% ad val. 1/ | 1-7/8¢ per lb. + 15% ad val. 1/ | NORWAY |

1/ On manganese content.
Note.- The duty on total imports in 1939 was equivalent to 71 percent ad valorem.

## Comment

Manganese silicon is used by the steel industry for the close control of the chemical and physical properties in certain high grades of steel demanded by exacting customers. When added in the proper amount to molten steel it provides an economical and rapid method for removing harmful oxides and at the same time raises the manganese content of the steel. Silicon and manganese both have a strong affinity for oxygen and when introduced as an alloy, the product of the reaction possesses more fluidity because of its lower melting point than when separate alloys are used. This feature is essential for clean steel.

In the United States manganese silicon is manufactured in the electric furnace from domestic materials. It is made by only a few operators. Production is small and unrecorded (possibly around 4,000 tons annually) but nevertheless greatly exceeds imports. According to the U. S. Bureau of Mines, the domestic material produced in 1943 averaged 67 percent manganese. Imports have always been small and Norway has been the sole supplier. Export statistics are unavailable, but exports are believed to be small or nil.

TUNGSTEN METAL AND COMPOUNDS
(See separate digest for tungsten ore and concentrates)

Stat. import classes (1939): 6233.1, 6233.2, and 6233.5-6233.9

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports 1/ | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Germany 2/ | |
| | Quantity (pounds) 3/ | | | | | |
| 1937 | Not available (see text) | 449,307 | 4/ 134,481 | 121,473 | 513 | |
| 1938 | | 256,185 | 5/ 23,055 | 21,029 | 1,954 | |
| 1939 | | 195,002 | 6/ 40,198 | 39,247 | 689 | |
| 1943 | | 7/ 1,267,059 | - | - | - | |
| | Value (dollars) | | | | | |
| 1937 | Not available (see text) | 866,505 | 4/ 133,574 | 111,987 | 1,756 | |
| 1938 | | 563,234 | 5/ 33,123 | 23,994 | 8,203 | |
| 1939 | | 784,675 | 6/ 47,294 | 41,440 | 3,432 | |
| 1943 | | 7/ 4,437,356 | - | - | - | |

1/ Tungsten metal, wire, shapes, and tungsten alloys; in 1943 includes ferrotungsten.
2/ Includes Austria beginning 1938. 3/ Tungsten content for imports.
4/ Includes tungsten metal, tungsten carbide, and 522 pounds of tungstic acid valued at $1,661. No imports of ferrotungsten and other alloys were received.
5/ Includes tungsten metal, tungsten carbide, and 241 pounds of tungstic acid valued at $1,606. No imports of ferrotungsten and other alloys were received.
6/ Includes tungsten metal, tungsten carbide, and 700 pounds of tungstic acid valued at $4,424. No imports of ferrotungsten and other alloys were received.
7/ Includes 157,487 pounds, valued at $1,909,337 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 302 | | | |
| (g) Tungsten metal, tungsten carbide, and mixtures or combinations containing tungsten metal or tungsten carbide, in lumps, grains, or powder. 1/ | 60¢ lb. of tung.cont.+ 50% ad val. | 60¢ lb. of tung.cont.+ 50% ad val. | |
| Tungstic acid and all other compounds of tungsten, n.s.p.f. | 60¢ lb. of tung.cont.+ 40% ad val. | 60¢ lb. of tung.cont.+ 40% ad val. | UNITED KINGDOM |
| (h) Ferrotungsten, ferrochromium tungsten, chromium tungsten, chromium cobalt tungsten, tungsten nickel, and other alloys of tungsten, n.s.p.f. | 60¢ lb. of tung.cont.+ 25% ad val. | 60¢ lb. of tung.cont.+ 25% ad val. | |

1/ Ingots, shot, bars, or scrap containing over 50 percent of tungsten or tungsten carbide and dutiable at 50 percent ad valorem under paragraph 316 (b) are covered in a separate digest.

Note.- The duty of 60 cents per pound plus 50 percent ad valorem on total imports of tungsten metal in 1939 was equivalent to 107 percent ad valorem; on combinations containing tungsten or tungsten carbide, 60.5 percent ad valorem. The duty of 60 cents per pound plus 40 percent ad valorem on total imports of tungstic acid and other compounds in 1939 was equivalent to 50 percent ad valorem. No statistics are available from which to compute the equivalent ad valorem of the duty on total imports of ferrotungsten and other alloys of tungsten in 1939.

TUNGSTEN METAL AND COMPOUNDS-Continued

Comment

Tungsten is a hard white metal when wrought, but in powdered form it has a gray to black appearance. It is used for filaments in incandescent lamps and radio tubes and for electrical contact points. It is also a component of stellite, a hard alloy containing principally cobalt (35-55 percent), chromium (30-35 percent), and tungsten (5-25 percent), which is used in high-speed cutting tools and for hard-facing welding rod.

Tungsten carbide contains about 94 percent tungsten and 6 percent carbon. It is prepared in powder form by sintering tungsten metal with a binder (usually 3 to 12 percent cobalt) at a temperature of about 1400° centigrade. The resulting product, a hard, tough material which retains its hardness at a bright red heat, is used for the tips of high-speed tools, for punches, blanking dies, dies for wire drawing, and for the lining of blast nozzles and other orifices subject to abrasion.

Tungstic acid is an intermediate product in the manufacture of tungsten metal from tungsten ore. It is also the raw material for the manufacture of tungsten trioxide and other chemicals. Tungsten pigments are used in the manufacture of printing inks, paints, enamels, rubber, waxes, and paper.

Ferrotungsten, the chief tungsten alloy, is made directly from tungsten ore and is used by the steel industry in the manufacture of hard steel for tools, armor plate, and other products.

There are no available statistics on the United States production of tungsten metal, carbide, or chemicals. The Bureau of Mines, however, estimates that 75 percent of the tungsten ore (domestic and imported) consumed in 1943 went into steel production either directly or in the form of ferro-alloys. At this rate, about 5,100 tons of tungsten ore having a tungsten content of approximately 4,850,000 pounds was consumed in the production of tungsten metal, tungsten carbide, tungstic acid, and other compounds. It has been estimated that 90 percent of the United States prewar consumption of tungsten ore went into ferrous alloys, 5 percent into tungsten carbide, 2 percent into stellite, and 3 percent into electrical equipment and miscellaneous products. 1/ On the basis of this estimate, the apparent consumption of tungsten in the United States in 1938 2/ was about 2,753,000 pounds of tungsten in ferro-alloys and about 306,000 pounds in the production of tungsten metal, tungsten carbide, and other tungsten compounds. In 1938 some 23,000 pounds (7½ percent of the tungsten metal, carbide, and other compounds apparently consumed) was imported. About 98 percent of the total imports in 1938 were in the form of tungsten metal, most of which came from the United Kingdom.

Exports of ferrotungsten were not reported separately before 1942, but were included with those of other ferro-alloys. Exports of tungsten products before the war were largely the result of bonded free entry of ores for treatment. However, small amounts of tungsten were exported in manufactures with benefit of drawback.

1/ Li, K.C. and Wang, Chung Yu, Tungsten, Am. Chem. Soc., Monograph No. 94, chapter VII, p. 249, 1943.

2/ Statistics for 1938 are used because they are the latest prewar figures available.

FERROSILICON

Par. No. 302(i)
CANADA

Stat. import classes (1939): 6225.0-6225.4

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from--- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Norway | United Kingdom |
| | Quantity (long tons) | | | | | |
| 1937 | 362,313 | n.a. | 12,929 | 11,894 | 998 | 37 |
| 1938 | 163,775 | n.a. | 5,325 | 5,325 | - | - |
| 1939 | 343,822 | n.a. | 8,203 | 8,203 | - | - |
| 1943 | 719,854 | 2/ 25,860 | 9,416 | 9,416 | - | - |
| | Value (dollars) | | | | | |
| 1937 | 17,683,900 | n.a. | 349,207 | 303,391 | 43,335 | 2,481 |
| 1938 | 7,999,661 | n.a. | 134,067 | 134,067 | - | - |
| 1939 | 16,850,356 | n.a. | 237,543 | 237,543 | - | - |
| 1943 | 46,619,979 | 2/ 1,817,483 | 156,077 | 156,077 | - | - |

1/ Shipments.
2/ Includes 24,104 long tons valued at $1,646,149 exported under lend-lease.
Source: Production from the U. S. Bureau of Mines; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per lb. of contained silicon | | |
| Par. 302(i) | | | |
| Ferrosilicon: | | | |
| Containing 8 per centum or more of silicon and less than 30 per centum. | 2 | 1/ 1 | CANADA |
| Containing 30 per centum or more of silicon and less than 60 per centum. | 2 | 2 | do. |
| Containing 60 per centum or more of silicon and less than 80 per centum. | 3 | 3 | do. |
| Containing 80 per centum or more of silicon and less than 90 per centum. | 4 | 4 | do. |
| Containing 90 per centum or more of silicon. | 8 | 8 | do. |

1/ Trade agreement with Canada, effective January 1939. Previously reduced to 1½ cents per pound in the first agreement with Canada, effective January 1936.
Note.- The duty on total imports in 1939 was equivalent to 10 percent ad valorem. (All imports were 8 to less than 30 percent silicon.) The ad valorem equivalents, on the four higher grades, calculated on domestic values, were as follows: 27 percent, 33 percent, 48 percent, and 64 percent, respectively.

FERROSILICON - Continued

Comment

Ferrosilicon is an alloy of iron and silicon containing from about 7 to 95 percent silicon. It is manufactured in the United States from domestic materials in both the blast furnace and electric furnace, and is used principally as a deoxidizer in the manufacture of steel, in the production of high silicon steel for electrical uses, and to a small extent in mineral separation by the heavy media method. Silicon metal, which contains 96 percent or more silicon, is used in making aluminum and certain other nonferrous metals or alloys, but is not under consideration here.

About a dozen independent 1/ concerns in this country produce ferrosilicon in as many separate plants, disposing of their product to the steel industry. In at least two plants the output is small and is a byproduct of the electric furnace manufacture of nonmetallurgical commodities. The silicon content in these instances is below 15 percent. Blast-furnace ferrosilicon plants are situated close to the steel centers which they serve. Ohio is the largest producing state manufacturing about 40 percent of the entire domestic output. The Ohio material is produced mainly in blast furnaces. Production by New York companies, in their own and some other states, almost equals the Ohio tonnages, but they specialize in electric-furnace material. Pennsylvania, Alabama, and Tennessee furnish the remainder, mostly blast-furnace material.

Canada has been the chief source of imports, principally of the low-silicon grade. Plants in Canada owned by United States companies probably produce this alloy cheaper than plants in the United States because of lower power rates. Export statistics for the domestic product were formerly combined with statistics for other alloys. Since 1942, and excepting 1943, they have ranged from 1,000 to 4,000 tons.

1/ I. e., non-steel-producing concerns.

FERROCHROME OR FERROCHROMIUM
(Containing 3 percent or more of carbon)

Stat. import class (1939): 621.40

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Japan | |
| | Quantity (pounds) 2/ | | | | | |
| 1937 | 115,000,000 | n.a. | 214,179 | 199,171 | 15,008 | |
| 1938 | 52,000,000 | n.a. | 60 | 60 | - | |
| 1939 | 115,000,000 | n.a. | 6,862 | 6,862 | - | |
| 1943 | 234,000,000 | 3/ 4,719,117 | 20,050 | 20,050 | - | |
| | Value (dollars) | | | | | |
| 1937 | 20,000,000 | n.a. | 19,066 | 18,179 | 887 | |
| 1938 | 10,000,000 | n.a. | 5 | 5 | - | |
| 1939 | 20,000,000 | n.a. | 646 | 646 | - | |
| 1943 | 70,000,000 | 3/ 759,362 | 2,986 | 2,986 | - | |

1/ Estimated from consumption of metallurgical chromite. 2/ Chromium content for production and exports. 3/ Principally Lend-Lease exports, except as noted.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound of chromium content | | |
| Par. 302 (k) | | | |
| Ferrochrome or ferrochromium, containing 3 percentum or more of carbon | 2½ | 1/1¼ | CANADA |

1/ Trade agreement with Canada, effective January 1939.
Note.- The duty on the imports in 1939 was equivalent to 13 percent ad valorem.

Comment

Ferrochromium is used chiefly for making tool steels, ball-bearing steels, automobile steels, and stainless steels. Practically all of the ferrochromium produced in the United States is made, in electric furnaces, from imported chromium ore which is free of duty. Canada is the only significant source of United States imports of ferrochromium, which have been very small.

CHROMIUM METAL

Stat. import class (1939): 6215.4

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | Germany 3/ | UNITED KINGDOM | France |
| | Quantity (pounds) | | | | | | |
| 1937 | Not available | Not available | 173,617 | 47,626 | 116,491 | 9,500 | - |
| 1938 | | | 87,641 | 11,200 | 67,234 | 9,000 | 207 |
| 1939 | | | 126,423 | 83,823 | 33,600 | 9,000 | - |
| 1943 | | | - | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not available | Not available | 91,014 | 20,780 | 64,683 | 5,551 | - |
| 1938 | | | 48,343 | 4,844 | 38,127 | 5,301 | 71 |
| 1939 | | | 59,520 | 36,160 | 18,196 | 5,164 | - |
| 1943 | | | - | - | - | - | - |

1/ Domestic production probably exceeds imports.
2/ Exports in the form of metal are probably negligible.
3/ Includes Austria beginning 1938.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(k) | | | |
| Chrome metal or chromium metal ----- | 30 | 1/ 25 | UNITED KINGDOM, NORWAY |

1/ The rate was reduced from 30 percent to 25 percent in the trade agreement with Switzerland, effective August 1935 and the 25 percent rate was bound in the trade agreement with the United Kingdom, effective January 1939.

Comment

Chromium, a hard white metal, is used in making noncorrosive ferrous alloys, electrical resistance alloys, high-strength bronzes, high-speed chrome-steel cutting tools, and as a rust resistant plating on other metals.

At the present time commercial production of chromium metal is exclusively in electric furnaces. Electrolytic chromium metal has been manufactured experimentally, but production has not as yet reached the commercial stage. The chromium of commerce must contain 95 percent or more of chromium, the best grade running over 98 percent with less than 1 percent iron. The greater part of the domestic output is produced by one company, located at Niagara Falls, N. Y.

# BORON CARBIDE

Stat. import class (1939): 625.50

United States production, exports, and imports for consumption, 1937-39 and 1943

| Year | Production | Domestic exports | Imports 1/ |
|---|---|---|---|
| | Quantity (pounds) | | |
| 1937 | Not available | Not available 2/ | 5,524 |
| 1938 | | | 2,165 |
| 1939 | | | 5,064 |
| 1943 | | | 40,441 |
| | Value (dollars) | | |
| 1937 | Not available | Not available 2/ | 7,973 |
| 1938 | | | 3,243 |
| 1939 | | | 5,849 |
| 1943 | | | 41,788 |

1/ All imported from CANADA.
2/ Exports, if any, are probably small.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | Percent ad valorem | | |
| Par. 302 (1) | | | |
| Boron carbide | 25 | 1/ 12½ | CANADA |

1/ Trade agreement with Canada, effective January 1939.

## Comment

Boron carbide is a fine, black, crystalline powder used as an abrasive or compressed into drawing dies. It is made by fusing boron and carbon in the electric furnace. "Boroflux," produced by the General Electric Co., is boron carbide with flake graphite. It is used as a deoxidising material for casting copper and as a lapping abrasive. "Norbide," marketed by the Norton Co., is made from boron carbide but contains no graphite and is used principally as a hard abrasive, for dies, for sand blast nozzles, and for other purposes where resistance to abrasion is essential. Many of the products made from boron carbide are still in the experimental stage at the present time.

The imports are believed to consist of Norbide exclusively, produced by the Canadian plant of the Norton Co.

# MANGANESE COPPER

Stat. import class (1939): 625.58

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | | |
| | Quantity (pounds) | | | | | |
| 1937 | Not available (see text) | Not available (see text) | 9,806 | 9,806 | | |
| 1938 | | | - | - | | |
| 1939 | | | 26,364 | 26,364 | | |
| 1943 | | | 1/ 1,000 | - | | |
| | Value (dollars) | | | | | |
| 1937 | Not available (see text) | Not available (see text) | 1,090 | 1,090 | | |
| 1938 | | | - | - | | |
| 1939 | | | 2,517 | 2,517 | | |
| 1943 | | | 1/ 255 | - | | |

1/ Free for Government use, imported from the United Kingdom.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302 (1) | | | |
| Manganese copper | 25 | 25 | NORWAY |

## Comment

Manganese copper is used in the production of copper-base alloys, principally nickel brass. These alloys are used in making large marine castings such as propellers, valve stems, etc. Manganese copper alloy is usually manufactured in the electric furnace. The number of domestic producers is few, and the quantity of alloy produced is small and unrecorded (probably 40,000 to 50,000 pounds annually). Imports have always been small and come usually from Norway.

Export statistics are not available, but exports are believed to be small or nil.

# FERROZIRCONIUM AND ZIRCONIUM FERROSILICON

Stat. import class (1939): 625.44

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | United Kingdom | |
| | Quantity (pounds) | | | | | |
| 1937 | Not available | n.a. | 230,449 | 230,449 | - | |
| 1938 | | n.a. | 244,126 | 244,126 | - | |
| 1939 | | n.a. | 799,269 | 798,869 | 400 | |
| 1943 | | 1/ 102,200 | - | - | - | |
| | Value (dollars) | | | | | |
| 1937 | Not available | n.a. | 13,085 | 13,085 | - | |
| 1938 | | n.a. | 13,520 | 13,520 | - | |
| 1939 | | n.a. | 50,169 | 50,104 | 65 | |
| 1943 | | 1/ 6,732 | - | - | - | |

1/ Includes 11,200 pounds valued at $1,344 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(m) | | | |
| Ferrozirconium and zirconium ferrosilicon | 25 | 25 | NORWAY |

## Comment

Zirconium, when added to steel, reduces the contained metallic oxides and scavenges nonmetallic inclusions, but does not tend to remain in the steel in the form of an oxide, as does aluminum. By reason of the cleaning it thus receives, steel becomes more homogeneous both as to composition and structure. Nitrogen dissolved in the steel combines chemically with zirconium, forming a nitride which enters the slag. Sulfur also combines chemically with zirconium, forming a malleable sulphide. In heat-treated engineering steels, zirconium promotes depth hardenability. When added to cast iron, zirconium acts as a deoxidizer and scavenger, and under properly controlled conditions it promotes density, machinability, and strength.

Production and exports have not been separately recorded, but both were probably small or nonexistent before the war. Most of the prewar domestic requirements were met by imports from Norway, where cheap electric power was available for production of the alloy. When this source was cut off during the war, the domestic industry began production in the Niagara Falls area.

# FERROVANADIUM, FERROTITANIUM, FERROURANIUM, ALLOYS, N.S.P.F. AND ALLOYS, N.E.S.

Stat. import classes (1939): 625.30, 625.35, 625.42, 625.89, 625.99

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | United Kingdom | Norway |
| | Quantity (pounds) | | | | | |
| 1937 ---- | Not | n.a. | 461,055 | 229,134 | 4,500 | 226,761 |
| 1938 ---- | avail- | n.a. | 2,510 | - | - | 2,288 |
| 1939 ---- | able | n.a. | 141,931 | 141,400 | 350 | - |
| 1943 ---- | (see text) | 1/1,948,742 | 21,022,708 | 21,022,708 | - | - |
| | Value (dollars) | | | | | |
| 1937 ---- | Not | n.a. | 23,031 | 10,078 | 608 | 12,192 |
| 1938 ---- | avail- | n.a. | 451 | - | - | 299 |
| 1939 ---- | able | n.a. | 2,485 | 2,397 | 77 | - |
| 1943 ---- | (see text) | 1/621,455 | 1,222,149 | 1,222,149 | - | - |

1/ Comprises exports of ferrovanadium, ferrotitanium, and ferrocarbon titanium.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(m) | | | |
| Ferrotitanium) Ferrovanadium) Ferrouranium ) ---------- | 25 | 1/15 | CANADA |
| Par. 302(o) | | | |
| Alloys used in the manufacture of steel or iron, n.s.p.f.: | | | |
| Containing not less than 28% of iron, not less than 18% of aluminum, not less than 18% of silicon, and not less than 18% of manganese ---------- | 25 | 2/12½ | |
| Other ---------- | 25 | 25 | CANADA |

1/ Trade agreements with Canada, effective January 1936 and January 1939.
2/ Trade agreement with Switzerland, effective February 1936.

## Comment

Vanadium and uranium are used as alloying elements for the benefits which the residual metal confers on steel, while titanium is used solely as a purifying agent. Crude materials of these metals are first converted to high grade ferro-alloys to facilitate their addition to steel. The use of uranium in atomic bombs may have important effects in determining the availability of ferrouranium for the steel industry.

The other ferro-alloys not specified in the tariff act are special purpose combinations of iron and alloying metals. They are used for highly specialized steels designed to meet given specifications.

With the exception of ferrovanadium and ferrotitanium, the consumption of alloys of this group is small--and in many cases--experimental and negligible in quantity.

FERROVANADIUM, FERROTITANIUM, FERROURANIUM, ALLOYS, N.S.P.F. AND ALLOYS, N.E.S.--Continued

The ferro-alloys discussed here are products of the electric furnace, and the development of cheap electric power, coupled with rapid advancement in production technique during the war, has made the United States practically independent of imports. Prewar imports were highly variable both in total quantity and in source, but in no year were they of much importance.

Miscellaneous ferro-alloys: United States imports for consumption, by kind and principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Ferrouranium | - | |
| Ferrovanadium | - | |
| Ferrotitanium | $77 | United Kingdom, $77 |
| Alloys, n.s.p.f. | 2,008 | CANADA, $1,997; Belgium, $11 |
| Alloys, n.e.s. | 400 | CANADA, $400 |

Source: Official statistics of the U. S. Department of Commerce.

# CALCIUM SILICIDE (CALCIUM SILICON)

Stat. import class (1939): 6226.4

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | France | |
| | Quantity (1,000 pounds) | | | | | |
| 1937 | Not available (see text) | Not available | 3,752 | 2,878 | 874 | |
| 1938 | | | 1,402 | 943 | 459 | |
| 1939 | | | 3,973 | 3,251 | 722 | |
| 1943 | | | - | - | - | |
| | Value (1,000 dollars) | | | | | |
| 1937 | Not available (see text) | Not available | 205 | 157 | 48 | |
| 1938 | | | 77 | 53 | 24 | |
| 1939 | | | 225 | 190 | 35 | |
| 1943 | | | - | - | - | |

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(n) | | | |
| Calcium silicide (calcium-silicon) | 25 | 25 | NORWAY |

## Comment

Calcium silicide, an alloy of calcium and silicon, is produced in the electric furnace. Two grades enter the market. Both contain 60 to 65 percent silicon, but grade "A" contains 30 to 35 percent calcium while grade "B" contains only 28 to 32 percent.

The alloy is added to molten metal in the ladle as a deoxidizer and degasifier for both steel and cast iron. Both metals contained in this alloy are active deoxidizers and form a low-melting-point slag which readily cleans the metal of oxides and other nonmetallic inclusions. The fluidity of liquid steel is also greatly improved by the addition of this alloy. This is of particular advantage when pouring thin-section castings. In basic electric-furnace practice calcium silicide is used to develop quickly a very fluid reducing slag. It is used in making high-grade alloy steel, stainless steel, and high-strength cast iron.

During the 1930's domestic requirements were supplied to a large degree by imports from Norway and France but, with the development of domestic production during the war the principal distributor of the alloy in the United States is now in a position to supply domestic demand from its American plant, which utilizes power from Niagara Falls. No imports of the alloy were recorded during 1943 and 1944.

# CALCIUM METAL

Stat. import class (1939): 625.59

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries | FRANCE | Germany 1/ |
| | Quantity (pounds) | | | | |
| 1937 | Not available 2/ | Not available 3/ | 23,767 | 22,224 | 1,543 |
| 1938 | | | [illegible],299 | 41,299 | - |
| 1939 | | | [illegible],718 | 41,167 | 551 |
| 1943 | | | - | - | - |
| | Value (dollars) | | | | |
| 1937 | Not available 2/ | Not available 3/ | 10,087 | 8,598 | 1,489 |
| 1938 | | | 16,144 | 16,144 | - |
| 1939 | | | 17,758 | 17,223 | 535 |
| 1943 | | | - | - | - |

1/ Includes Austria beginning 1938.
2/ Probably small but increasing.
3/ Probably nil.
Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(n) | | | |
| Calcium metal | 25 | 25 | FRANCE |

## Comment

Metallic calcium is employed in the grain-refining of alloy steels and in small amounts in some magnesium products. It is also used (a) as a deoxidizer and alloy agent for copper, lead, and other nonferrous alloys; (b) in the preparation of high-temperature, high-resistance nickel-chrome and nickel-chrome-iron alloys; and (c) as a reducing agent in the manufacture of the more uncommon metals, such as titanium, uranium, vanadium, and zirconium. Its use in metallurgy is rather new and a widespread market for the metal has not yet been developed.

Although many other alloying materials are specified in paragraph 302(n), and are dutiable at the same rate as calcium metal, the relationship of the latter to those materials is not such as to preclude tariff action on calcium metal alone.

Before the war the United States was entirely dependent upon imports for its supplies of calcium, but the metal is now produced in quantity by one firm in this country. Present capacity of the plant is several times the maximum quantity imported in prewar years.

BARIUM, BORON, COLUMBIUM OR NIOBIUM, STRONTIUM, TANTALUM, UNITED KINGDOM
THORIUM, TITANIUM, URANIUM, VANADIUM AND ZIRCONIUM METALS
(See following digest on alloys of these metals)

Stat import class (1939): 625.60

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries | Germany 1/ | UNITED KINGDOM |
| | Quantity (pounds) | | | | |
| 1937 | Not available (see text) | Not available 2/ | 258 | 250 | - |
| 1938 | | | 610 | 600 | 9 |
| 1939 | | | - | - | - |
| 1943 | | | - | - | - |
| | Value (dollars) | | | | |
| 1937 | Not available (see text) | Not available 2/ | 749 | 726 | - |
| 1938 | | | 1,553 | 1,528 | 19 |
| 1939 | | | - | - | - |
| 1943 | | | - | - | - |

1/ Includes Austria beginning 1938. 2/ Practically nil.
Source: Imports from official statistics of the U. S. Department of Commerce.

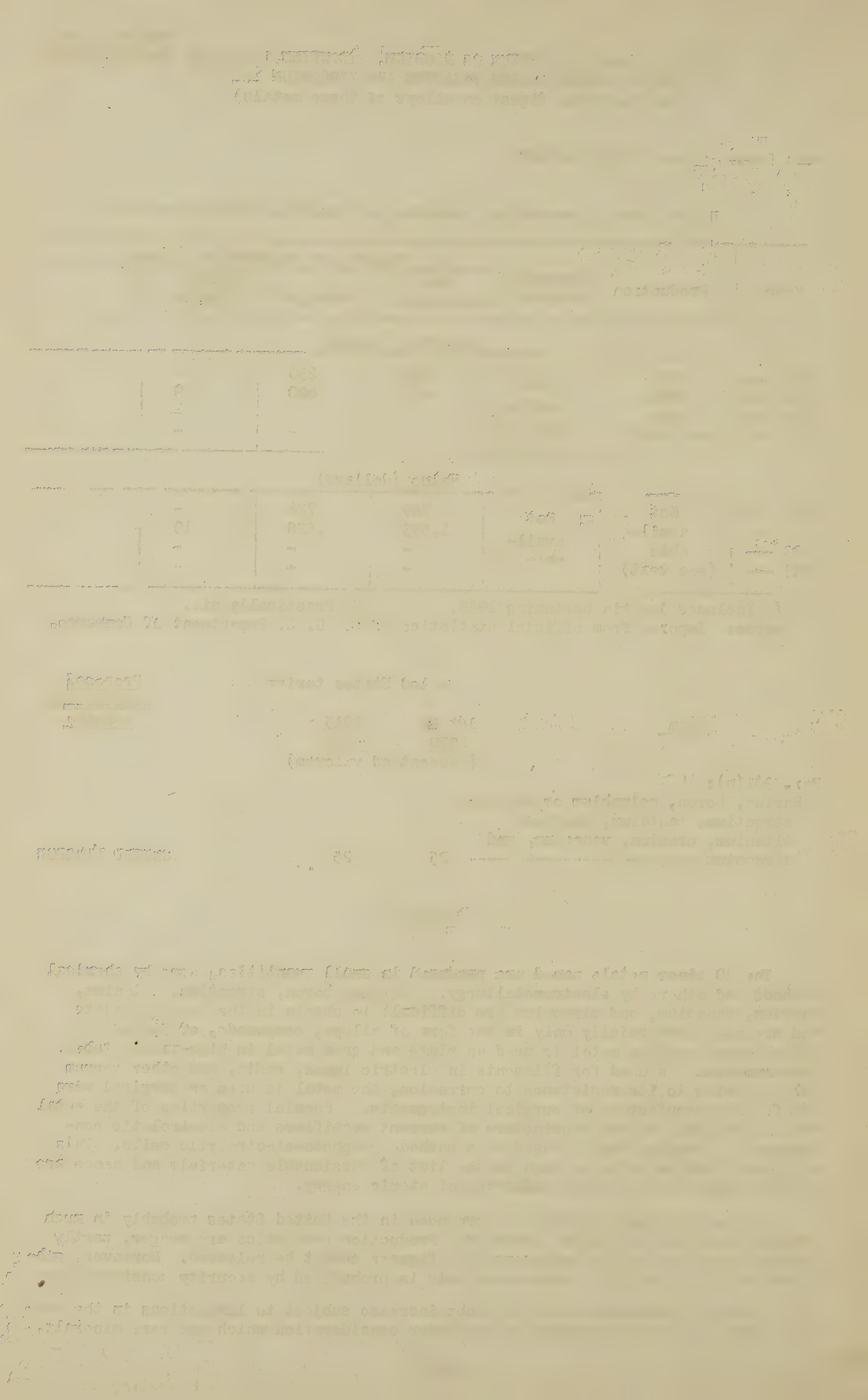
| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | (Percent ad valorem) | | |
| Par. 302(n): | | | |
| Barium, boron, columbium or niobium, strontium, tantalum, thorium, titanium, uranium, vanadium, and zirconium | 25 | 25 | UNITED KINGDOM |

Comment

The 10 minor metals named are produced in small quantities, some by chemical methods and others by electrometallurgy. Barium, boron, strontium, titanium, thorium, vanadium, and zirconium are difficult to obtain in the metallic state and are used commercially only in the form of alloys, compounds, or salts. Columbium or niobium metal is used as plate and grid metal in high-vacuum tubes. Tantalum metal is used for filaments in electric lamps, radio, and other vacuum tubes. Owing to its resistance to corrosion, the metal is used as surgical wire and for the manufacture of surgical instruments. Special properties of the metal make it valuable in the manufacture of current rectifiers and electrolytic condensers. Uranium metal is used as a cathode in photo-electrolytic cells. This metal and thorium are also high on the list of fissionable materials and hence are of vital importance in the production of atomic energy.

The entire group of metals is produced in the United States probably in much greater volume than they are imported. Production statistics are meager, partly because there are so few producers that figures cannot be released. Moreover, publication of data on fissionable materials is prohibited by security considerations.

Domestic consumption will no doubt increase subject to limitations in the supply of some of the raw materials here under consideration which are rare minerals.



# ALLOYS OF TWO OR MORE OF THE FOLLOWING METALS: BARIUM, BORON, CALCIUM, COLUMBIUM OR NIOBIUM, STRONTIUM, TANTALUM, THORIUM, TITANIUM, URANIUM, VANADIUM, AND ZIRCONIUM

Stat. import class (1939): 625.61

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Canada | UNITED KINGDOM | |
| | Quantity (pounds) | | | | | |
| 1937 | Not available 1/ | Not available | 5,106 | 5,106 | N O N E | |
| 1938 | | | 4,056 | 4,056 | | |
| 1939 | | | 2,291 | 2,291 | | |
| 1943 | | | - | - | | |
| | Value (dollars) | | | | | |
| 1937 | Not available 1/ | Not available | 3,004 | 3,004 | N O N E | |
| 1938 | | | 2,434 | 2,434 | | |
| 1939 | | | 1,610 | 1,610 | | |
| 1943 | | | - | - | | |

1/ Much larger than imports.

Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(n) | | | |
| Alloys of two or more of the following metals: Barium, boron, calcium, columbium or niobium, strontium, tantalum, thorium, titanium, uranium, vanadium, and zirconium | 25 | 25 | UNITED KINGDOM |

## Comment

The eleven metals, the alloys of which are considered herein are produced in small quantities in the United States, some by chemical methods and other by electro-metallurgy. Alloys of these metals are used for many diversified purposes as additions in ferrous and nonferrous metallurgy but especially in steel making. Additional uses are in the ceramic and chemical industries.

Paragraph 302(n) of the Tariff Act of 1930 also covers alloys of one or more of these metals with one or more of the following metals: Aluminum, chromium, cobalt, copper, manganese, nickel, or silicon; these alloys are not under consideration here, but are covered by a separate digest. Such alloys are also used almost entirely as additives in making steel and nonferrous alloys.

United States production of the alloys here considered is much larger than imports; statistics of production, however, are not available. In prewar years Canada supplied nearly all of the imports of these alloys while most of the metals came from Germany. A very large part of the imports from Canada were produced by Canadian manufacturers who are affiliated with producers of alloys in the United States, and this trade is likely to continue.

# BARIUM, BORON, CALCIUM, COLUMBIUM OR NIOBIUM, STRONTIUM, TANTALUM, THORIUM, TITANIUM, URANIUM, VANADIUM AND ZIRCONIUM METALS: ALLOYS, N.S.P.F. OF ONE OR MORE OF THESE METALS WITH ONE OR MORE OF THE METALS ALUMINUM, CHROMIUM, COBALT, COPPER, MANGANESE, NICKEL, OR SILICON

Stat. import class (1939): 625.63

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | NORWAY | United Kingdom | |
| | Quantity (pounds) | | | | | |
| 1937 | Not available 1/ | Not available 2/ | 388,801 | 388,801 | - | |
| 1938 | | | 79,357 | 79,357 | - | |
| 1939 | | | 715,881 | 715,781 | 100 | |
| 1943 | | | - | - | - | |
| | Value (dollars) | | | | | |
| 1937 | Not available 1/ | Not available 2/ | 22,510 | 22,510 | - | |
| 1938 | | | 5,113 | 5,113 | - | |
| 1939 | | | 39,264 | 39,137 | 127 | |
| 1943 | | | - | - | - | |

1/ Probably substantially larger than imports.
2/ Probably negligible.
Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(n) | | | |
| Alloys, n.s.p.f., of one or more of the metals barium, boron, calcium, columbium or niobium, strontium, tantalum, thoriun, titanium, uranium, vanadium, or zirconium with one or more of the metals aluminum, chromium, cobalt, copper, manganese, nickel, or silicon | 25 | 25 | NORWAY |

## Comment

Most of the alloys in this group are electric furnace products used only in small commercial quantities or experimentally. They are mostly used for scavenging steel, cast iron, and various nonferrous alloys. Many are designed for highly specialized purposes, such as chromium-vanadium alloys which are used to add vanadium to high-speed tool steels where both chromium and vanadium are desired; manganese-boron alloys for the manufacture of monel metal; manganese-silicon-boron for scavenging ferrous and nonferrous alloys, and increasing depth chill and shortening the heat-treating cycle in cast irons; titanium-aluminum alloy for making other alloys of aluminum; titanium-copper for age-hardening copper alloys; and the zirconium alloys for scavenging steel and nonferrous metals.

Before the war Norway was the chief source of United States imports; there was then little domestic production . Owing to cheap electric power available for electric furnace operation, the Norwegian plants were strategically located for supplying both the American and European markets. At least one of these plants was owned by an American concern. With the advent of war, necessary equipment was installed by domestic producers to supply our requirements, power from Niagara Falls being utilized.

## SILICO-SPIEGEL

Stat. import class (1939): 625.80

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from--- | | |
|---|---|---|---|---|---|
| | | | All countries | Norway | CANADA |
| | Quantity (pounds) | | | | |
| 1937 -- | N | Not | 695,900 | 557,220 | 138,680 |
| 1938 -- | o | avail- | - | - | - |
| 1939 -- | n | able | - | - | - |
| 1943 -- | e | | - | - | - |
| | Value (dollars) | | | | |
| 1937 -- | N | Not | 7,509 | 5,339 | 2,170 |
| 1938 -- | o | avail- | - | - | - |
| 1939 -- | n | able | - | - | - |
| 1943 -- | e | | - | - | - |

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 302(o) | | | |
| All alloys used in the manufacture of iron and steel, n.s.p.f.: | | | |
| Silico-spiegel ---------- | 25 | 25 | CANADA |

### Comment

Silico-spiegel is an alloy of silicon and manganese with iron and is employed in making furnace additions of silicon and manganese to open hearth steels. Both the silicon and manganese act as strong deoxidizing agents, forming a thin fusible slag which aids in making clean steel.

There is no domestic production of silico-spiegel. The alloy was manufactured in Norway and Canada in an attempt to produce a manganese alloy which might avoid the payment of the existing duty on manganese content, but the attempt proved futile. Under the Brazilian trade agreement, effective January 1936, the duty on manganese ore and concentrates was reduced 50 percent. Because of this it then became possible to manufacture more economical and practical alloys of manganese in the United States and imports of silico-spiegel ceased.

## CERIUM METAL, FERROCERIUM, AND ALL OTHER CERIUM ALLOYS

Stat. import classes (1939): 625.70, 625.75

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | France | CANADA | UNITED KINGDOM |
| | Quantity (pounds) | | | | | |
| 1937 | Not available (see text) | n.a. | 809 | - | - | 809 |
| 1938 | | n.a. | 468 | - | - | 461 |
| 1939 | | n.a. | 585 | 529 | 46 | 10 |
| 1943 | | 1/ 54,797 | 5,720 | - | 5,720 | - |
| | Value (dollars) | | | | | |
| 1937 | Not available (see text) | n.a. | 2,367 | - | - | 2,367 |
| 1938 | | n.a. | 1,267 | - | - | 1,209 |
| 1939 | | n.a. | 1,134 | 997 | 142 | 45 |
| 1943 | | 1/ 148,891 | 27,589 | - | 27,589 | - |

1/ Includes 12,000 pounds valued at $35,904 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 302 (p) | | | |
| Cerium metal | $2 lb. | $2 lb. | UNITED KINGDOM |
| Par. 302 (q) | | | |
| Ferrocerium and all other cerium alloys | $2 lb. + 25% ad val. | $2 lb. + 25% ad val. | CANADA, UNITED KINGDOM |

Note.- The duty on imports of ferrocerium and other alloys in 1939 was equivalent to 124 percent ad valorem. No cerium metal was imported in 1939.

### Comment

Cerium, a soft metal with a steel gray color, has few uses as such, the principal one being in the evacuation of radio tubes. However, certain alloys into which the metal enters, as well as some of its compounds, have a fairly extended range of application. The most important alloy is ferrocerium, used principally as the sparking or lighting medium for cigarette and acetylene-welding torch lighters, miners' lamps, and toys. The alloys are also used in military pyrotechnics, in the ignition of explosives, as an illuminant in photography, and as a reducing agent.

Domestic production of both metal and alloys has always been small, though greatly exceeding imports, and few statistics are available. In 1943, three plants produced a total of 212,379 pounds of the cerium master alloy commonly known as Misch metal. This alloy is used in the manufacture of ferrocerium. No statistics are available on the production of the metal itself, and other alloys thereof.

Prewar imports of both metal and alloy were very small and came principally from Europe. Canada was our only foreign source during the war.

SEMIFINISHED AND FINISHED IRON AND STEEL PRODUCTS (EXCEPT IRON CASTINGS) a/
(Summary Digest)



Stat. import classes (1939): Various

United States production, exports, and imports, 1937-39 and 1943

| | 1937 | 1938 | 1939 | 1943 |
|---|---|---|---|---|
| | Quantity (short tons) | | | |
| Production 1/ | 56,636,945 | 31,751,990 | 52,798,714 | 88,836,512 |
| Exports | 2,807,391 | 1,736,808 | 2,190,159 | 2/ 6,701,788 |
| Imports for consumption from-- | | | | |
| Total all countries | 263,952 | 150,385 | 149,297 | 3/ 16,597 |
| Germany 4/ | 52,261 | 35,935 | 35,586 | - |
| BELGIUM | 144,875 | 77,915 | 73,165 | - |
| Sweden | 27,974 | 8,983 | 12,542 | 5/ |
| UNITED KINGDOM | 3,392 | 1,827 | 1,351 | 262 |
| CANADA | 4,435 | 1,478 | 7,899 | 15,791 |
| | Value (dollars) | | | |
| Production 1/ | n.a. | n.a. | n.a. | n.a. |
| Exports | 181,345,013 | 113,802,393 | 154,943,324 | 2/ 551,154,737 |
| Imports for consumption from-- | | | | |
| Total all countries | 12,603,392 | 7,547,951 | 7,139,196 | 3/ 2,453,206 |
| Germany 4/ | 3,584,287 | 2,319,903 | 2,433,594 | - |
| BELGIUM | 4,369,149 | 2,833,171 | 2,335,051 | - |
| Sweden | 2,759,557 | 1,078,829 | 1,233,687 | 1 |
| UNITED KINGDOM | 627,623 | 344,204 | 269,787 | 62,312 |
| CANADA | 228,152 | 64,016 | 219,463 | 2,382,055 |

1/ Steel ingots and steel for castings.

2/ Includes 4,611,045 short tons, valued at $387,815,895 exported under lend-lease.

3/ Free for Government use 3,940 short tons, valued at $1,350,050 imported from Canada.

4/ Includes Austria beginning 1938.

5/ Less than one-half ton.

Source: Production from American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

## United States tariff

For the entire group of products covered by this summary report, the average ad valorem equivalent of the duties (many of which are specific) amounted to about 20 percent in 1939. Most of the rates ranged from 10 to 35 percent in ad valorem equivalent (see separate digests for detailed data on tariff rates and ad valorem equivalents).

## Comment

This over-all report, which summarizes the data contained in 25 separate digests (listed in table at end of report) covers steel ingots and the principal semi-finished and finished products of the iron and steel industry. The principal semifinished products included are blooms, billets, slabs, and skelp; the principal finished products range all the way from heavy forms, such as plates, bars, and structural shapes, to light forms, such as sheets, tin plate, wire, wire rope, and wire fencing. According to the Census of Manufactures, in 1939 the value added to material by manufacture in steelworks and rolling mills and steel foundries amounted to 1,238 million dollars.

a/ Nonferrous products and certain minor ferrous products dutiable under these paragraphs are excluded.

## SEMIFINISHED AND FINISHED IRON AND STEEL PRODUCTS (EXCEPT IRON CASTINGS)—Continued

The great bulk of the output of finished products consists of low-priced or medium-priced tonnage steel chiefly carbon or low-alloy grades. The output of high-priced tool and fine steel, often highly alloyed, is very small compared to that of tonnage steel. A small number of large integrated producers account for the bulk of the production of tonnage steel, although for a much smaller part of that of tool and fine steel. The latter kinds of steel are produced to a considerable extent by smaller concerns specializing in this branch of the industry. Pennsylvania, Ohio, Indiana, and Illinois are the principal steel-producing States.

During the war there was considerable expansion in the productive capacity of the industry. Annual capacity for crude steel (ingots and castings) increased from 81,620,000 tons on January 1, 1940 to 95,505,000 tons on June 30, 1945, the greatest in the history of the industry. After the end of the war, some of the less efficient facilities for crude steel (as for some more advanced products) were scrapped with the result that capacity declined to 91,891,000 tons as of January 1, 1946. On the latter date the capacity of open-hearth furnaces amounted to 81,237,000 tons, of electric furnaces to 5,500,000 tons, and of Bessemer converters to 5,154,000 tons. Some of the rolling mills used during the war for the production of ship plates are being converted to the production of products more in demand in peacetime and many new mills will be constructed during the next few years for the same purpose. As a result the industry will have better equipment than ever before.

The United States has long been the world's largest producer of iron and steel products, but before the war it was surpassed in export trade by Germany, Belgium, France, and the United Kingdom, largely because of their greater accessibility to foreign markets and their lower export prices, and partly because of tariff advantages, such as those enjoyed by the United Kingdom in British Empire markets.

In terms of quantity, imports in the prewar period supplied less than 1 percent of United States consumption, although for certain specialties, such as tool-steel bars, they supplied about 10 percent in certain prewar years. In terms of value, the high-priced steels accounted for a substantial part of the imports of all kinds of iron and steel products. Germany, Belgium, and France were the principal sources of imported low-priced tonnage steels, and Sweden and the United Kingdom of the higher priced special steels. Chiefly because of the cost of rail transportation in the United States, the market for imported tonnage steels is limited to areas near the ports of entry. High-priced steels are much more widely distributed, but the consumption of these is but a small fraction of that of tonnage steels. In terms of value, the principal products imported consisted of seamless tubes, bars, structural shapes, and wire rods.

Although United States exports of iron and steel products represented only from 3 to 7 percent of production in prewar years, they were much larger than imports. In terms of value, the principal products exported were tin plate, sheets, plates, pipes and tubes, and bars. Exports were widely distributed. Canada was the largest market for most products, with Mexico, Japan, Brazil, the Philippine Islands, and the Soviet Union ranking high among the foreign outlets.

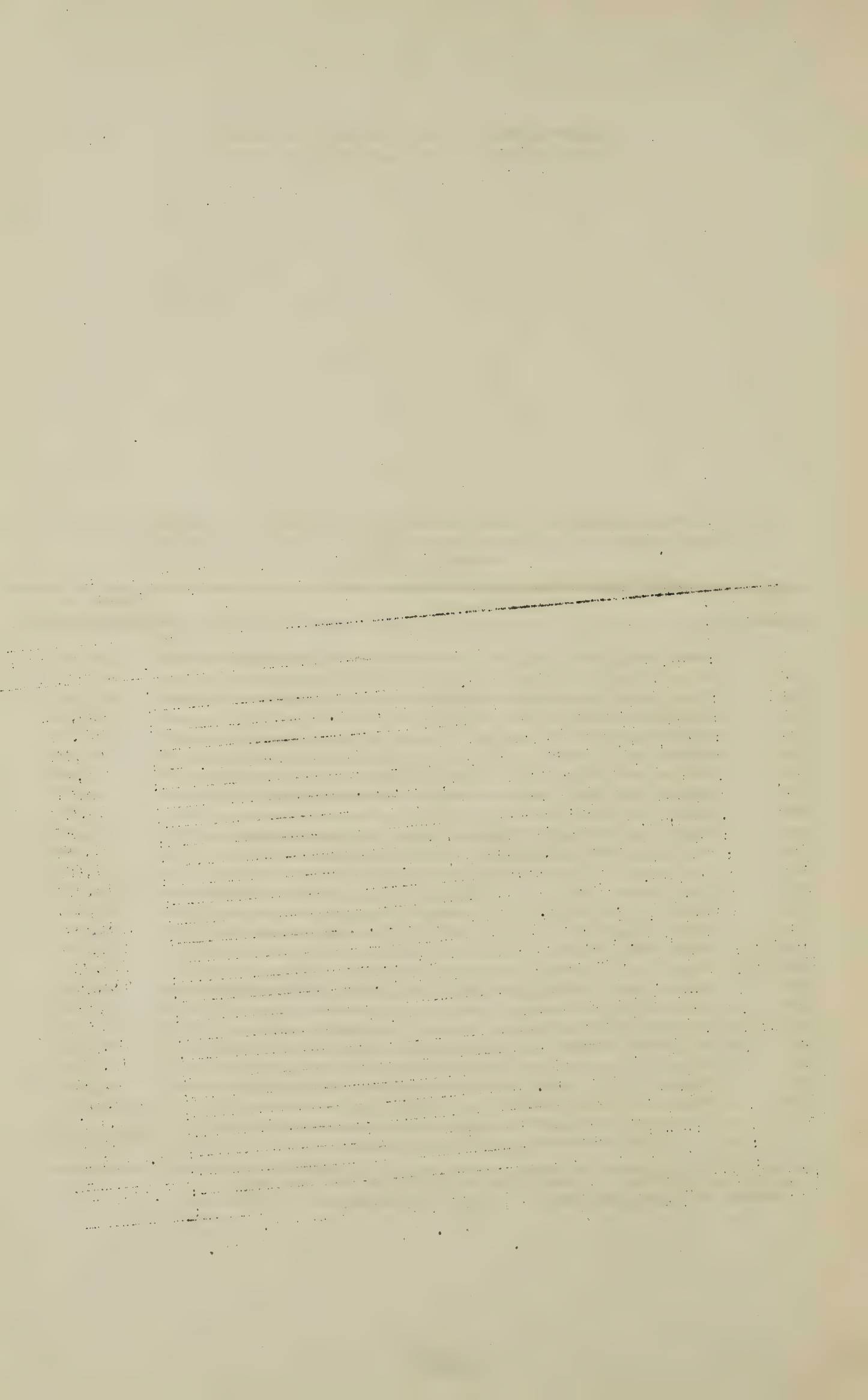
In the immediate postwar period it seems unlikely that imports of tonnage steel will offer even as much competition as they offered before the war. Germany, France, and Belgium-Luxemburg were then the principal sources of such imports. Demand for iron and steel for the rehabilitation of the war-torn countries of Europe probably will continue for some time to be great, and production in Germany even apart from any restriction by the United Nations will be limited by scarcity of coal and generally disturbed economic conditions. As a result, United States imports of tonnage steel from these sources may be much smaller than before the war. On the other hand, imports of high-grade steel from Sweden and the United Kingdom may more nearly approach prewar levels. The ability of the United States industry to compete with imports is stronger now than before the war; more plants and better equipment have been added during the war, some of them near the Atlantic and Pacific seaboards where the bulk of the imports were marketed before the war.

SEMIFINISHED AND FINISHED IRON AND STEEL PRODUCTS (EXCEPT IRON CASTINGS)-Continued

Iron and steel products: Total United States imports for consumption in 1939, by kinds of products covered by 25 digests included in this summary report

| Paragraph | Product | United States imports, 1939 |
|---|---|---|
| 303 | Muck bars, bar iron, etc. | $38,684 |
| 304 | Steel ingots, billets, die blocks, etc. | 102,763 |
| 304 | Steel bars | 981,162 |
| 304 | Hollow bars and hollow drill steel valued over 4¢ lb. | 198,753 |
| 304 | Steel circular saw plates | 23,659 |
| 304 | Sheets and plates and steel, n.s.p.f. | 39,528 |
| 307 | Boiler and other plate and skelp | 967 |
| 308 | Sheets and skelp | 31,287 |
| 309 | Laminated metal sheets or plates | 1,681 |
| 309 | Sheets and plates, polished, etc. | 13,017 |
| 310 | Tin plate and terneplate | 24,309 |
| 312 | Structural shapes | 1,331,066 |
| 313 | Hoop, band, scroll, and strip, n.s.p.f. | 594,639 |
| 314 | Baling hoops or bands | 313,782 |
| 315 | Wire rods, valued at not over 4¢ lb. | 532,453 |
| 316 (a) | Round wire, valued at not over 6¢ lb. | 20,394 |
| 316 (a) | Wire rope and strand | 291,361 |
| 317 | Galvanized fencing wire and wire fencing | 89,382 |
| 317 | Baling wire | 13,231 |
| 319 (a) | Forgings | 20,590 |
| 322 | Rails and accessories | 205,614 |
| 323 | Axles and parts, etc. | 1,148 |
| 324 | Wheels for railways | 12,692 |
| 328 | Pipes and tubes, welded and seamless 1/ | 2,256,534 |
| 328 | Electrical conduits | - |
| | Total | 7,139,196 |

1/ Excludes tubes for manufacturing anti-friction bearings.
Source: Official statistics of the U. S. Department of Commerce.



MUCK BARS, BAR IRON, ROUND IRON, IRON SLABS, BLOOMS, ETC.

Stat. import classes (1939): 602.01-.05; 602.11-.13

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Sweden | BELGIUM | Germany 4/ |
| | Quantity (short tons) | | | | | |
| 1937 | 141,652 | 2,486 | 1,640 | 1,452 | 187 | 1 |
| 1938 | n.a. | 1,467 | 301 | 5/ | 300 | - |
| 1939 | 128,596 | 970 | 648 | 521 | 120 | - |
| 1943 | n.a. | 6/ 4,382 | 7/ | - - | - | - |
| | Value (dollars) | | | | | |
| 1937 | Not available | 191,885 | 93,476 | 88,913 | 4,530 | 33 |
| 1938 | | 100,803 | 7,962 | 11 | 7,946 | - |
| 1939 | | 89,298 | 38,684 | 35,078 | 3,183 | - |
| 1943 | | 6/562,800 | 7/ 6 | - - | - | - |

1/ Muck and scrap bars whether produced and consumed in same works or made for sale and for interplant transfer. Production figures are more inclusive than figures for imports because they include all grades regardless of value.

2/ Iron bars only, but includes all grades regardless of value. Exports are thus not strictly comparable to imports.

3/ In the years shown imports on which rates additional to the base rates were imposed were negligible.

4/ Includes Austria beginning 1938.

5/ Less than one-half short ton.

6/ Includes 162 short tons valued at $66,342 exported under lend-lease.

7/ Imported from Canada.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 303 | | | |
| Muck bars, pieces thereof except crop ends, bar iron, and round iron in coils or rods, iron in slabs, blooms, loops, or other forms less finished than iron in bars and more advanced than pig iron, except castings; all the foregoing: | | | |
| Valued at not above 1½¢ per lb. | 3/10¢ lb. | 1/4¢ lb. 1/ | BELGIUM |
| Valued above 1½ and not above 2½¢ per lb. | 5/10¢ lb. | 5/10¢ lb. | do. |
| Valued above 2½ and not above 3½¢ per lb. | 8/10¢ lb. | 5/10¢ lb. 2/ | do. |
| Iron in slabs, blooms, loops, or other forms less finished than iron in bars and more advanced than pig iron, except castings: | | | |
| Valued above 3½ and not above 5¢ per lb. | 1¢ lb. | 8/10¢ lb. 2/ | do. |
| Valued above 5¢ lb. | 1½¢ lb. | 1¢ lb. 2/ | do. |

1/ Trade Agreement with Belgium, effective May 1935.

2/ Trade agreement with Sweden, effective August 1935.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for

MUCK BARS, BAR IRON, ROUND IRON, IRON SLABS, BLOOMS, ETC.--Continued

galvanizing, etc., under paragraph 309 (see separate digest), and for cold rolling, etc., under paragraph 315 (the additional rates in paragraph 315 are not under consideration in the proposed negotiations). Imports from Germany were dutiable at the preagreement rates. The ad valorem equivalents of the base specific rates on all imports subject to such base rates only, except imports from Germany, were as follows: 1/4¢ lb., equivalent to 19 percent in 1939; 5/10¢ lb. (1½-2½¢ lb. bracket) equivalent to about 22 percent in 1937 (no imports in 1938 or 1939); 5/10¢ lb. (2½-3½¢ lb. bracket), equivalent to 15 percent in 1939; and 1¢ lb., equivalent to 16 percent in 1939. There were no imports of slabs, etc., dutiable at 8/10¢ lb. in the years covered by this digest.

## Comment

Only 8 of the 10 import classes of paragraph 303 as listed in schedule A of the Department of Commerce have been listed for tariff consideration and are included within the scope of this digest. The eight comprise both low-priced grades, which in the aggregate have come chiefly from Belgium, and certain higher-priced grades, which have come chiefly from Sweden.

The products of this paragraph are known commercially as wrought iron or common iron. For many years genuine wrought iron produced in the United States was made chiefly from pig iron and some high-grade scrap, by hand-puddling methods. Since 1929, however, most of the domestic high-grade wrought iron has been made by a synthetic process which reduces labor costs but requires considerable investment. Common iron is a low-grade product made chiefly from scrap. Both high- and low-grade iron are converted from muck and scrap bars into finished mill products by rolling or forging, chiefly the former. Domestic production of non-alloy and alloy iron, especially the latter, has been very small as compared with the production of steel.

The table below indicates that less than 18 percent of total production was made for sale and interplant transfer in 1937 and less than 5 percent in 1939. It also indicates the unit value of the muck and scrap bars for sale and interplant transfer to be slightly over 2 cents per pound.

Muck and scrap bars: United States production, 1937 and 1939

| Item | 1937 | | | 1939 | | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Unit value | Quantity | Value | Unit value |
| | Short tons | | Per pound | Short tons | | Per pound |
| For sale and interplant transfer | 24,767 | $1,022,547 | $0.021 | 5,945 | $286,440 | $0.024 |
| Produced and consumed in same works | 116,885 | n.a. | n.a. | 122,651 | n.a. | n.a. |
| Total | 141,652 | n.a. | n.a. | 128,596 | n.a. | n.a. |

Source: Census of Manufactures, 1939.

Imports have been equal to only a small fraction of 1 percent of production for many years and have been greatly exceeded by exports. The domestic wrought iron industry meets its principal competition from steel (almost entirely of domestic manufacture), rather than from imported iron.

# STEEL INGOTS, BLOOMS, SLABS, BILLETS, BARS, SHEETS, PLATES, AND ALL OTHER PRODUCTS DUTIABLE UNDER PARAGRAPH 304.(SUMMARY DIGEST)



Stat. import classes (1939): 6005.0-6005-7; 6008.0-6008.8; 6010.0-6010-4; 6041.0-6041-8; 6042.0-6042.8; 6044.0-6044.8; 605.30-605.37; 605.50-605.57

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Sweden | UNITED KINGDOM | CANADA |
| | Quantity (short tons) | | | | | | |
| 1937 | 56,636,945 | 559,613 | 61,561 | 37,142 | 11,391 | 1,242 | 97 |
| 1938 | 31,751,990 | 357,968 | 25,246 | 13,075 | 4,765 | 693 | 121 |
| 1939 | 52,798,714 | 477,313 | 24,942 | 14,836 | 4,795 | 375 | 67 |
| 1943 | 88,836,512 | 3/2,708,481 | 4/ 6,629 | - | 5/ | 133 | 6,496 |
| | Value (1,000 dollars) | | | | | | |
| 1937 | Not available | 25,601 | 3,116 | 1,004 | 1,381 | 296 | 16 |
| 1938 | | 16,833 | 1,455 | 411 | 633 | 153 | 8 |
| 1939 | | 23,964 | 1,346 | 420 | 616 | 104 | 13 |
| 1943 | | 3/183,346 | 4/ 1,301 | - | 6/ | 33 | 1,268 |

1/ Steel ingots and steel for castings.
2/ Steel ingots, blooms, billets, slabs, sheet bars, tin-plate bars, castings, and concrete reinforcement and other steel bars, including cold finished.
3/ Includes 2,287,134 short tons valued at 156,530 thousand dollars exported under lend-lease.
4/ Free for Government use 2,916 short tons valued at 679 thousand dollars.
5/ Less than one-half short ton. 6/ Less than $500.
Source: Production from statistics of the American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304 | | | |
| Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks; billets and bars, whether solid or hollow; shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; concrete reinforcement bars; all descriptions and shapes of dry sand, loam, or iron molded steel castings; sheets and plates and steel not specially provided for; all the foregoing: | | | |
| Valued at not above 1½ cents per pound | 3/10¢ lb. | 1/4¢ lb. 2/ | |
| Valued above 1½ and not above 2½ cents per pound: | | | |
| Billets and bars, whether solid or hollow, weighing more than 30 pounds per linear foot; steel ingots, cogged ingots, blooms, and slabs | 1/2¢ lb. | 3/8¢ lb. 2/ | UNITED KINGDOM, BELGIUM |
| All other | 1/2¢ lb. | 2/5¢ lb. 2/ | |

See footnotes on following page.

STEEL INGOTS, BLOOMS, SLABS, BILLETS, BARS, SHEETS, PLATES, AND ALL OTHER PRODUCTS DUTIABLE UNDER PARAGRAPH 304-Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304 | | | |
| Steel ingots, cogged ingots, blooms, and slabs, by whatever process made-Continued: | | | |
| Valued above 2½ and not above 3½ cents per pound | 8/10¢ lb. | 20% ad val. 3/ | BELGIUM, UNITED KINGDOM |
| Valued above 3½ and not above 5 cents per pound | 1¢ lb. | 20% ad val. 3/ | |
| Valued above 5 and not above 8 cents per pound | 1-7/10¢ lb. | 20% ad val. 3/ | |
| Valued above 8 and not above 12 cents per pound | 2½¢ lb. | 2½¢ lb. or 20% ad val., but not less than 1-5/8¢ lb. 4/ | BELGIUM, UNITED KINGDOM (also CANADA for hollow drill steel only) |
| Valued above 12 and not above 16 cents per pound | 3½¢ lb. | 3½¢ lb. | BELGIUM, UNITED KINGDOM |
| Valued above 16 cents per pound | 20% ad val. | 20% ad val. | |
| Provided, That on circular saw plates there shall be levied, collected, and paid an additional duty of | 1/4¢ lb. | 1/4¢ lb. | |
| Provided further, That on hollow bars and hollow drill steel valued at more than 4 cents per pound there shall be levied, collected, and paid an additional duty of | 3/4¢ lb. | 3/4¢ lb. 4/ | |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest); for galvanizing, etc., under paragraph 309 (see separate digest), and for cold rolling, etc., under paragraph 315 (the additional rates in paragraph 315 are not under consideration in the proposed negotiations).

2/ Trade agreement with Belgium, effective May 1935.

3/ Trade agreement with Sweden, effective August 1935.

4/ The rate of 20 percent ad valorem but not less than 1-5/8 cents per pound applies to hollow bars and hollow drill steel without additional duty set forth in the proviso. This is a reduction from the combined base rate of 2½ cents and the additional duty of 3/4 cent, totaling 3¼ cents per pound, pursuant to the trade agreement with Canada, effective January 1939.

Note.- See table on the following page for the range of ad valorem equivalents of the base specific rates of duty shown above.

Ad valorem equivalents

This digest, which embraces all products in paragraph 304, supplements the five separate digests which follow dealing with smaller and more closely related groups of products in that paragraph. This summary digest affords the best means for comparison of the rates of the act of 1930 with the 1945 rates and of the ad valorem equivalents of the base duties.

The act of 1930 provided eight value brackets, seven with specific rates and one with an ad valorem rate. The effect of this arrangement is to make sudden large jumps in the ad valorem equivalents as the unit value passes from one of the demarcation points of the value brackets to immediately above that point. For example, if the value of the goods imported was exactly 1.5 cent per pound, the ad

STEEL INGOTS, BLOOMS, SLABS, BILLETS, BARS, SHEETS, PLATES, AND ALL OTHER PRODUCTS SUITABLE UNDER PARAGRAPH 304-Continued

valorem equivalent of the 1930 duty of 0.3 cent per pound amounted to 20 percent. But if the value was 1.501 cent per pound, the ad valorem equivalent of the 0.5 cent per pound duty amounted to 33 percent. This system of duties encourages misrepresentation of foreign values. As a result of the Swedish agreement, these inequalities were partly ironed out by substituting ad valorem rates for specific rates in three of the brackets, and in the Canadian agreement another ad valorem rate (with a specific minimum) was substituted for a single class of products only. Consideration might be given to further substitution of ad valorem for specific rates. The eight value brackets, however, might well be retained for statistical purposes.

The following table shows the range of ad valorem equivalents of the base rates of the act of 1930 and of those prevailing in 1945. These equivalents were obtained by dividing the applicable specific rates by the bottom and top limits of the respective value brackets.

| Value bracket | Act of 1930 | | | 1945 rates | | |
|---|---|---|---|---|---|---|
| | Base duty | Ad valorem equivalent at | | Base duty | Ad valorem equivalent at | |
| | | Bottom of bracket | Top of bracket | | Bottom of bracket | Top of bracket |
| Cents per pound: | Cents per lb. | Percent | Percent | Cents per lb. | Percent | Percent |
| Not over 1½ | 0.3 | - | 20 | 0.25 1/ | - | 17 |
| 1½ - 2½ | .5 | 33 | 20 | .375 2/ | 25 | 15 |
| 1½ - 2½ | .5 | 33 | 20 | .40 2/ | 27 | 16 |
| 2½ - 3½ | .8 | 32 | 23 | 20% | 20 | 20 |
| 3½ - 5 | 1.0 | 29 | 20 | 20% | 20 | 20 |
| 5 - 8 | 1.7 | 34 | 21 | 20% | 20 | 20 |
| 8 - 12 | 2.5 | 31 | 21 | 2.5 2/ | 31 2/ | 21 3/ |
| 12 - 16 | 3.5 | 29 | 22 | 3.5 | 29 | 22 |
| Over 16 | 20% | 20 | 20 | 20% | 20 | 20 |

1/ The ad valorem equivalent on actual imports in 1939 was nearly 19 percent. 2/ For products included, see tariff section. 3/ This rate and ad valorem equivalents applies to all products except hollow bars and hollow drill steel. See separate digest on the latter products.

Comment

The products here under consideration range all the way from low-priced tonnage steel grades to high-priced tool and fine steel grades, often highly alloyed. Tonnage steel accounts for about 99 percent of total steel production in the United States but a much smaller part of the imports, especially in terms of value. The products under consideration here are of importance because they constitute a fairly large part of total imports of iron and steel products. In 1937 total imports under paragraph 304 amounted to about $3,100,000 compared to total iron and steel imports (chiefly under paragraphs 303 to 328) of about $19,300,000. A much larger part of the total imports of alloy steel is entered under this paragraph, principally in the form of tool steel bars.

## STEEL INGOTS, BLOOMS, BILLETS, BARS, SHEETS, PLATES, AND ALL OTHER PRODUCTS DUTIABLE UNDER PARAGRAPH 304-Continued

Steel ingots, blooms, slabs, billets, bars, sheets, and plates: United States imports for consumption by kind, 1937 and 1939

| Item 1/ | 1937 | 1939 |
|---|---|---|
| Bars | $2,382,922 | $981,162 |
| Hollow drill steel, etc. | 357,491 | 198,753 |
| Ingots, etc. | 266,510 | 102,763 |
| Circular saw plates | 11,624 | 23,659 |
| Sheets and plates, n.s.p.f. | 97,211 | 39,528 |
| Total | 3,115,758 | 1,345,865 |

1/ Each of the five kinds of products is covered by a separate digest.
Source: Official statistics of the U. S. Department of Commerce.

Tables 1 and 2 (at end of this Summary Digest) show the total imports, in value, of all products combined, by value brackets and by principal sources, for 1937 and 1939, respectively, including a breakdown into carbon and alloy steel. In 1937 total imports from Belgium and the United Kingdom were, in value, nearly equal to those from Sweden.

Table 3 (1939 imports) shows a breakdown into kinds of products. It may be noted that the great bulk of the imports of hollow bars and hollow drill steel were entered in the 5 to 8 cents value bracket and that nearly all of the imports in that bracket came from Sweden.

Table 1.- Steel ingots, billets, bars, sheets, plates, and all other products dutiable under paragraph 304: Summary of United States imports for consumption, by value brackets and principal sources, 1937

(Foreign value expressed in dollars)

| Value bracket (Cents per lb.) | Grand Total | | | BELGIUM | | | Sweden | | | UNITED KINGDOM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Carbon | Alloy | Total | Carbon | Alloy | Total | Carbon | Alloy | Total | Carbon | Alloy |
| Not over 1½ | 1,013,253 | 1,013,253 | - | 769,783 | 769,783 | - | - | - | - | 139 | 139 | - |
| 1½ - 2½ | 276,906 | 276,906 | - | 225,169 | 225,169 | - | 88 | 88 | - | 14,185 | 14,185 | - |
| 2½ - 3½ | 22,500 | 13,564 | 8,936 | 5,268 | 5,268 | - | 16,123 | 7,187 | 8,936 | 395 | 395 | - |
| 3½ - 5 | 298,791 | 114,400 | 184,391 | 1,107 | 1,034 | 73 | 267,621 | 107,172 | 160,449 | 1,643 | 670 | 973 |
| 5 - 8 | 868,929 | 560,968 | 307,961 | 1,273 | 1,273 | - | 834,704 | 530,613 | 304,091 | 19,826 | 18,703 | 1,123 |
| 8 - 12 | 281,695 | 104,592 | 177,103 | 1,736 | 1,736 | - | 142,295 | 20,065 | 122,230 | 109,726 | 78,757 | 30,969 |
| 12 - 16 | 67,377 | 30,043 | 37,334 | 112 | 112 | - | 24,923 | 1,868 | 23,055 | 12,943 | 6,039 | 6,904 |
| Over 16 | 286,307 | 63,968 | 222,339 | - | - | - | 95,686 | 3,243 | 92,443 | 137,138 | 40,929 | 96,209 |
| Total, all brackets | 3,115,758 | 2,177,694 | 938,064 | 1,004,448 | 1,004,375 | 73 | 1,381,440 | 670,236 | 711,204 | 295,995 | 159,817 | 136,178 |

Source: Official statistics of the U. S. Department of Commerce.

Table 2.- Steel ingots, billets, bars, sheets, plates, and all other products dutiable under paragraph 304: Summary of United States imports for consumption, by value brackets and principal sources, 1939

(Foreign value expressed in dollars)

| Value bracket (Cents per lb.) | Grand total | | | BELGIUM | | | Sweden | | | UNITED KINGDOM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Carbon | Alloy | Total | Carbon | Alloy | Total | Carbon | Alloy | Total | Carbon | Alloy |
| Not over 1½ | 434,907 | 434,907 | - | 348,968 | 348,968 | - | - | - | - | 1,335 | 1,335 | - |
| 1½ - 2½ | 120,727 | 120,727 | - | 67,300 | 67,300 | - | - | - | - | 110 | 110 | - |
| 2½ - 3½ | 8,282 | 5,239 | 3,043 | 1,985 | 1,985 | - | 4,704 | 1,661 | 3,043 | 32 | 32 | - |
| 3½ - 5 | 72,725 | 25,297 | 47,428 | 309 | 309 | - | 61,498 | 24,963 | 36,535 | 25 | 25 | - |
| 5 - 8 | 449,028 | 267,932 | 181,096 | 42 | 42 | - | 424,269 | 263,510 | 160,759 | 1,705 | 1,673 | 32 |
| 8 - 12 | 130,126 | 49,796 | 80,330 | 346 | - | 346 | 73,536 | 9,046 | 64,490 | 51,268 | 38,032 | 13,236 |
| 12 - 16 | 24,435 | 3,863 | 20,572 | 263 | 263 | - | 18,308 | 959 | 17,349 | 2,391 | 2,264 | 127 |
| Over 16 | 105,635 | 20,101 | 85,534 | 470 | 434 | 36 | 34,045 | 2,170 | 31,875 | 47,458 | 3,082 | 39,376 |
| Total, all brackets | 1,345,865 | 927,862 | 418,003 | 419,683 | 419,301 | 382 | 616,360 | 302,309 | 314,051 | 104,324 | 51,553 | 52,771 |

Source: Official statistics of the U. S. Department of Commerce.

Table 3.- Steel ingots, billets, bars, sheets, plates, and all other products dutiable under paragraph 304: United States imports for consumption, by value brackets, kinds, and principal sources, 1939

(Foreign value expressed in dollars)

| Value bracket and product | Total | | BELGIUM | | Sweden | | UNITED KINGDOM | |
|---|---|---|---|---|---|---|---|---|
| | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy |
| Not over 1½¢ lb.: | | | | | | | | |
| Concrete bars | 65,092 | - | 62,435 | - | - | - | - | - |
| Bars, n.e.s. | 359,108 | - | 284,451 | - | - | - | 1,335 | - |
| Die blocks, etc. | 2,215 | - | 2,052 | - | - | - | - | - |
| Sheets and plates, n.s.p.f. | 8,492 | - | 30 | - | - | - | - | - |
| Total | 434,907 | - | 348,968 | - | - | - | 1,335 | - |
| 1½ - 2½¢ lb.: | | | | | | | | |
| Concrete bars | 9,100 | - | 1,835 | - | - | - | - | - |
| Bars, n.e.s.: | | | | | | | | |
| Not more than 30 lbs. ft. | 97,446 | - | 51,351 | - | - | - | 101 | - |
| More than 30 lbs. ft. | 1,214 | - | 1,156 | - | - | - | - | - |
| Sheets and plates, n.s.p.f. | 12,967 | - | 12,958 | - | - | - | 9 | - |
| Total | 120,727 | - | 67,300 | - | - | - | 110 | - |
| 2½ - 3½¢ lb.: | | | | | | | | |
| Concrete bars | 97 | - | - | - | - | - | - | - |
| Bars, n.e.s. | 2,025 | - | - | - | 1,024 | - | - | - |
| Bars, n.e.s., cold rolled, etc. | 688 | - | 688 | - | - | - | - | - |
| Billets | 669 | 3,043 | - | - | 637 | 3,043 | 32 | - |
| Sheets and plates, n.s.p.f. | 1,760 | - | 1,297 | - | - | - | - | - |
| Total | 5,239 | 3,043 | 1,985 | - | 1,661 | 3,043 | 32 | - |
| 3½ - 5¢ lb.: | | | | | | | | |
| Bars, n.e.s. | 15,519 | 3,043 | 309 | - | 15,210 | 3,043 | - | - |
| Bars, n.e.s. (From Germany) | - | 10,732 | - | - | - | - | - | - |
| Bars, n.e.s., cold rolled, etc. | - | 160 | - | - | - | - | - | - |
| Billets | 9,778 | 33,481 | - | - | 9,753 | 33,481 | 25 | - |
| Sheets and plates, n.s.p.f. | - | 11 | - | - | - | 11 | - | - |
| Total | 25,297 | 47,428 | 309 | - | 24,963 | 36,535 | 25 | - |

Table 3.- Steel ingots, billets, bars, sheets, plates and all other products dutiable under paragraph 304: United States imports for consumption, by value brackets, kinds, and principal sources, 1939-Con.

(Foreign value expressed in dollars)

| Value bracket and product | Total | | BELGIUM | | Sweden | | UNITED KINGDOM | |
|---|---|---|---|---|---|---|---|---|
| | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy |
| 5 - 8¢ lb.: | | | | | | | | |
| Bars, n.e.s. | 96,376 | 132,236 | - | - | 92,495 | 132,236 | 1,326 | - |
| Bars, n.e.s. (from Germany) | - | 127 | - | - | - | - | - | - |
| Bars, n.e.s. cold rolled, etc. | 1,994 | 4,311 | - | - | 1,994 | 4,311 | - | - |
| Hollow drill steel, etc. | 164,782 | 27,584 | - | - | 164,763 | 7,406 | - | - |
| Ingots, etc. | 19 | 1,441 | - | - | - | 1,441 | - | - |
| Billets | 4,238 | 15,397 | 23 | - | 4,215 | 15,365 | - | 32 |
| Die blocks, etc. | 443 | - | 19 | - | - | - | 347 | - |
| Sheets and plates, n.s.p.f. | 80 | - | - | - | 43 | - | - | - |
| Total | 267,932 | 181,096 | 42 | - | 263,510 | 160,759 | 1,673 | 32 |
| 8 - 12¢ lb.: | | | | | | | | |
| Bars, n.e.s. | 36,195 | 58,527 | - | 254 | 2,437 | 48,577 | 32,911 | 7,563 |
| Bars, n.e.s., cold rolled, etc. | - | 97 | - | - | - | 86 | - | - |
| Hollow drill steel | 4,171 | 419 | - | 92 | 2,545 | 327 | - | - |
| Hollow drill steel, cold rolled, etc. | - | 34 | - | - | - | - | - | - |
| Ingots, etc. | - | 373 | - | - | - | 373 | - | - |
| Billets | 318 | 14,346 | - | - | - | 13,862 | 309 | 484 |
| Die blocks, etc. | 236 | - | - | - | - | - | - | - |
| Saw plates | 461 | - | - | - | 273 | - | 188 | - |
| Sheets and plates, n.s.p.f. | 8,415 | 6,534 | - | - | 3,791 | 1,265 | 4,624 | 5,189 |
| Total | 49,796 | 80,330 | - | 346 | 9,046 | 64,490 | 38,032 | 13,236 |
| 12 - 16¢ lb.: | | | | | | | | |
| Bars, n.e.s. | 2,813 | 14,765 | - | - | 585 | 12,923 | 2,083 | 127 |
| Bars, n.e.s., cold rolled, etc. | 130 | 633 | - | - | 103 | 259 | 27 | - |
| Hollow drill steel, etc. | 25 | - | - | - | - | - | - | - |
| Billets | - | 989 | - | - | - | 989 | - | - |

Table 3.- Steel ingots, billets, bars, sheets, plates, and all other products dutiable under paragraph 304: United States imports for consumption, by value brackets, kinds, and principal sources, 1939-Continued

(Foreign value expressed in dollars)

| Value bracket and product | Total | | BELGIUM | | Sweden | | UNITED KINGDOM | |
|---|---|---|---|---|---|---|---|---|
| | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy |
| 12-16¢ lb.—Continued: | | | | | | | | |
| Die blocks, etc. | 390 | - | 170 | - | - | - | 13 | - |
| Saw plates | 388 | 1,092 | - | - | 271 | 85 | 117 | - |
| Saw plates, galvanized, etc. | - | 2,873 | - | - | - | 2,873 | - | - |
| Sheets and plates, n.s.p.f. | 117 | 220 | 93 | - | - | 220 | 24 | - |
| Total | 3,863 | 20,572 | 263 | - | 959 | 17,349 | 2,264 | 127 |
| Over 16¢ lb.: | | | | | | | | |
| Bars, n.e.s. | 9,087 | 56,404 | 171 | 36 | 110 | 16,686 | 2,478 | 31,593 |
| Bars, n.e.s., cold rolled, etc. | 1,638 | 1,804 | - | - | 19 | 126 | 1,488 | 383 |
| Hollow drill steel, etc. | 15 | 1,705 | - | - | 15 | 1,705 | - | - |
| Hollow drill steel, cold rolled, etc. | - | 18 | - | - | - | - | - | - |
| Ingots, etc. | - | 2,176 | - | - | - | - | - | - |
| Billets | 1,492 | 7,156 | - | - | 1,492 | 5,277 | - | 1,879 |
| Die blocks, etc. | 4,563 | - | 170 | - | 27 | - | 3,977 | - |
| Saw plates | 2,102 | 3,429 | - | - | 507 | 3,252 | - | 144 |
| Saw plates, galvanized, etc. | 543 | 12,771 | - | - | - | 4,737 | - | 5,377 |
| Sheets and plates, n.s.p.f. | 661 | 271 | 93 | - | - | 92 | 139 | - |
| Total | 20,101 | 85,534 | 434 | 36 | 2,170 | 31,875 | 8,082 | 39,376 |

Source: Official statistics of the U. S. Department of Commerce.

# STEEL BARS, EXCEPT HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND

Stat. import classes (1939): 6005.0-7, 6008.0-8

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Sweden | UNITED KINGDOM |
| | Quantity (short tons) | | | | | |
| 1937 | 6,755,012 | 175,882 | 53,855 | 35,817 | 6,495 | 1,043 |
| 1938 | 3,484,923 | 167,464 | 22,881 | 12,897 | 3,189 | 369 |
| 1939 | 6,138,350 | 232,625 | 21,755 | 14,445 | 2,547 | 305 |
| 1943 | 11,858,047 | 4/ 624,379 | 5/ 2,795 | - | 6/ | 23 |
| | Value (dollars) | | | | | |
| 1937 | Not available | 11,160,619 | 2,382,922 | 957,469 | 826,847 | 231,422 |
| 1938 | | 10,239,843 | 1,174,152 | 401,039 | 433,034 | 104,497 |
| 1939 | | 15,164,853 | 981,162 | 402,686 | 332,224 | 81,415 |
| 1943 | | 4/ 84,130,428 | 5/ 415,660 | - | 1 | 5,689 |

1/ Includes hot rolled merchant, concrete reinforcement, and alloy iron and steel bars.

2/ Includes concrete reinforcement and other steel bars, including cold-finished.

3/ Includes concrete reinforcement bars and bars, n.e.s.

4/ Includes 405,852 short tons, valued at $66,948,509 exported under lend-lease.

5/ Free for Government use 1,076 short tons valued at $192,859 from Canada. Dutiable imports from Canada amounted to 1,646 short tons valued at $215,499.

6/ Less than one-half ton.

Source: Production from statistics of the American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304: | | | |
| Bars, whether solid or hollow, 2/ and concrete reinforcement bars: | | | |
| Valued at not above 1 1/3¢ lb. | 3/10¢ lb. | 1/4¢ lb. 3/ | BELGIUM, U.K. |
| Valued above 1 1/3 and not above 2 1/3¢ lb.: | | | |
| Bars, whether solid or hollow, weighing more than 30 lb. per linear foot | 1/2¢ lb. | 3/8¢ lb. 3/ | do |
| All other | 1/2¢ lb. | 2/5¢ lb. 3/ | do |
| Valued above 2 1/3 and not above 3 1/3¢ lb. | 8/10¢ lb. | 20% ad val. 4/ | do |
| Valued above 3 1/3 and not above 5¢ lb. | 1¢ lb. | 20% ad val. 4/ | do |
| Valued above 5 and not above 8¢ lb. | 1-7/10¢ lb. | 20% ad val. 4/ | do |
| Valued above 8 and not above 12¢ lb. | 2 1/2¢ lb. | 2 1/2¢ lb. | do |
| Valued above 12 and not above 16¢ lb. | 3 1/2¢ lb. | 3 1/2¢ lb. | do |
| Valued above 16¢ lb. | 20% ad val. | 20% ad val. | do |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold rolling, etc. under paragraph 315 (the additional rates in paragraph 315 are not under consideration in the proposed negotiations).

2/ Except hollow bars and hollow drill steel valued at more than 4¢ per lb.

3/ Trade agreement with Belgium, effective May 1935.

4/ Trade agreement with Sweden, effective August 1935.

Note.- A discussion of the ad valorem equivalents of the rates of duty on all products dutiable under the provisions of paragraph 304 is contained in Summary Digest on that paragraph.

STEEL BARS, EXCEPT HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND-Continued

Comment

All grades of steel bars provided for in paragraph 304 except hollow bars and hollow drill steel valued over 4 cents per pound are here under consideration. In November 1946, published base prices of steel bars per pound at Pittsburgh ranged from 2.35 cents for concrete reinforcement bars to 72.5 cents for high-speed steel. The lowest-priced grades generally are carbon steel and the highest-priced are high-alloy tool steel. A common type of high-speed steel contains 18 percent tungsten, 4 percent chromium, and 1 percent vanadium. Steel for low-priced and medium-priced grades of bars is made chiefly in open hearth furnaces, and that for the highest-priced grades in electric furnaces. Steel bars are generally rolled, but sometimes forged. Steel bars are widely used in the automotive, construction, and machinery manufacturing industries. Concrete reinforcement bars have depressions or projections which increase their efficiency when used in concrete structures. High-priced steels are used for tools and other special purposes.

The large integrated steel companies account for the great bulk of the United States output of low- and medium-priced steel bars and a considerable part of the output of high-priced tool and fine steel bars. In the latter category, however, a fairly large number of relatively small producers account for a larger share of the output. Labor and overhead costs constitute a much larger part of total costs in the tool and fine steel branch of the industry than in the tonnage steel branch.

The United States is by a wide margin the largest producer of all kinds of steel bars. Before the war Germany, France, Belgium, and Luxemburg were the principal foreign producers of low-priced tonnage steel bars. Much of this steel, however, was of the basic-Bessemer grade, which is generally rated as inferior to the steel produced here. The United Kingdom and Sweden were the leading producers of tool steel bars.

During the war the competitive position of the domestic industry was strengthened by the construction of large and efficient open hearth and electric furnaces, and bar rolling mills. Some of this expansion took place in coastal areas, where nearly all of the prewar imports of low-priced steel bars were consumed, chiefly because of rail transportation costs within the United States.

Imports of steel bars (concrete bars and bars, n.e.s.), in value, by principal kinds, value brackets, and sources in 1939 are shown below.

Imports range all the way from low-priced tonnage steel to high-priced tool and fine steel. All of the imports of the lower-priced steel consist of carbon (non-alloy) grades, whereas those of the higher-priced steel consist of both carbon and alloy grades with the latter predominating.

STEEL BARS, EXCEPT HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND-Continued

Steel bars, except hollow bars and hollow drill steel valued over 4 cents per pound: United States imports for consumption, by value brackets, kinds, with principal sources, 1939

(Value only)

| Value bracket and kind | Total value | Principal source |
|---|---|---|
| | | Carbon |
| Not over 1½¢ lb. | | |
| Concrete bars | $65,092 | BELGIUM, $62,435 |
| Bars, n.e.s. | 359,108 | BELGIUM, $284,451; France, $69,800 |
| 1½¢ - 2½¢ lb.: | | |
| Concrete bars | 9,100 | Germany,[1] $7,265; BELGIUM, $1,835 |
| Bars, n.e.s.- | | |
| Not more than 30 lb. per lin. ft. | 97,446 | BELGIUM, $51,351; Germany,[1] $34,540 France, $11,427 |
| More than 30 lb. per lin. ft. | 1,214 | BELGIUM, $1,156 |
| 2½¢ - 3½¢ lb.: | | |
| Concrete bars | 97 | Canada, $97 |
| Bars, n.e.s. | 2,025 | Sweden, $1,024; Canada, $1,001 |
| Cold rolled, n.e.s. | 688 | BELGIUM, $688 |
| 3½¢ - 5¢ lb.: | | |
| Bars, n.e.s. | 15,519 | Sweden, $15,210; BELGIUM, $309 |
| Cold rolled, n.e.s. | - | --- |
| 5¢ - 8¢ lb.: | | |
| Bars, n.e.s. | 96,376 | Sweden, $92,495; UNITED KINGDOM, $1,326 |
| Cold rolled, n.e.s. | 1,994 | Sweden, $1,994 |
| 8 - 12¢ lb.: | | |
| Bars, n.e.s. | 36,195 | UNITED KINGDOM, $32,911; Sweden, $2,437 |
| Cold rolled, n.e.s. | - | --- |
| 12 - 16¢ lb.: | | |
| Bars, n.e.s. | 2,813 | UNITED KINGDOM, $2,083; Sweden, $585 |
| Cold rolled, n.e.s. | 130 | Sweden, $103; UNITED KINGDOM, $27 |
| Over 16¢ lb.: | | |
| Bars, n.e.s. | 9,087 | Germany[1] $6,123; UNITED KINGDOM, $2,478 BELGIUM, $171 |
| Cold rolled, n.e.s. | 1,638 | UNITED KINGDOM, $1,488; Germany[1] $131 |
| | | Alloy |
| Not over 1½¢ lb.: | | |
| Concrete bars | - | --- |
| Bars, n.e.s. | - | --- |
| 1½¢ lb. - 2½¢ lb.: | | |
| Concrete bars | - | --- |
| Bars, n.e.s.- | | |
| Not more than 30 lb. per lin. ft. | - | --- |
| More than 30 lb. per lin. ft. | - | --- |
| 2½¢ - 3½¢ lb.: | | |
| Concrete bars | - | --- |
| Bars, n.e.s. | - | --- |
| Cold rolled, n.e.s. | - | --- |
| 3½¢ - 5¢ lb.: | | |
| Bars, n.e.s. | $13,776 | Germany,[1] $10,733; Sweden, $3,043. |
| Cold rolled, n.e.s. | 160 | Germany,[1] $160 |
| 5¢ - 8¢ lb.: | | |
| Bars, n.e.s. | 132,363 | Sweden, $132,236; Germany,[1] $127 |
| Cold rolled, n.e.s. | 4,311 | Sweden, $4,311 |
| 8 - 12¢ lb.: | | |
| Bars, n.e.s. | 58,527 | Sweden, $48,577; UNITED KINGDOM, $7,563; BELGIUM, $254 |
| Cold rolled, n.e.s. | 97 | Sweden, $97 |

STEEL BARS, EXCEPT HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND-Continued

Steel bars, except hollow bars and hollow drill steel valued over 4 cents per pound: United States imports for consumption, by value brackets, kinds, with principal sources, 1939-Continued

(Value only)

| Value bracket and kind | Total value | Principal source |
|---|---|---|
| | | Alloy-Continued |
| 12 - 16¢ lb.: | | |
| Bars, n.e.s. | $14,765 | Sweden, $12,923; UNITED KINGDOM, $127; Germany, 1/ $993 |
| Cold rolled, n.e.s. | 633 | Germany, 1/ $374; Sweden, $259 |
| Over 16¢ lb.: | | |
| Bars, n.e.s. | 56,404 | UNITED KINGDOM, $31,593; Sweden, $16,686; BELGIUM, $36 |
| Cold rolled, n.e.s. | 1,604 | Germany, 1/ $1,095; UNITED KINGDOM, $383 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

For many years, imports have been equivalent to less than 1 percent of domestic production and have been much smaller than exports.

## HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND

Stat. import class (1939): 6010.0, 6010.1, 6010.2, 6010.3, and 6010.4

United States production, exports, and imports, 1937-39 and 1943 1/

| Year | Production | Domestic exports | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Sweden | CANADA | BELGIUM | UNITED KINGDOM |
| | Quantity (short tons) | | | | | | |
| 1937 | Not | | 2,842 | 2,695 | 36 | - | 44 |
| 1938 | avail- | Not | 969 | 943 | 2/ | - | - |
| 1939 | able | avail- | 1,519 | 1,362 | 10 | 1 | - |
| 1943 | (See text.) | able | [illegible] | - | 9 | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not | | 357,491 | 340,007 | 3,642 | - | 5,447 |
| 1938 | avail- | Not | 131,386 | 127,828 | 51 | - | - |
| 1939 | able | avail- | 198,753 | 176,761 | 1,651 | 92 | - |
| 1943 | (See text) | able | [illegible] 2,008 | - | 2,008 | - | - |

1/ It is estimated that in certain recent prewar years imports were equal to about half of domestic production, and were considerably greater than exports.

2/ Less than one-half short ton.

Source: Official statistics of the U. S. Department of Commerce, except as noted.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 304 | | | |
| Hollow bars and hollow drill steel: 1/ | | | |
| Valued above 4 and not above 5¢ lb. | 1-3/4¢ lb. | 2/ 3/4¢ lb. + 20% ad val. | BELGIUM and UNITED KINGDOM |
| Valued above 5 and not above 8¢ lb. | 2-9/20¢ lb. | 2/ 3/4¢ lb + 20% ad val. | do. |
| Valued above 8 and not above 12¢ lb. | 3-1/4¢ lb. | 3/ 20% ad val. but not less than 1-5/8¢ lb. | BELGIUM, UNITED KINGDOM and CANADA |
| Valued above 12 and not above 16¢ lb. | 4-1/4¢ lb. | 4-1/4¢ lb. | BELGIUM and UNITED KINGDOM |
| Valued above 16¢ lb. | 3/4¢ lb.+ 20% ad val. | 3/4¢ lb. + 20% ad val. | do. |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc. under paragraph 309 (see separate digest), and for cold rolling, etc. under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations).

2/ Trade agreement with Sweden, effective August 1935.

3/ Trade agreement with Canada, effective January 1939.

Note.- Ad valorem equivalents of the above rates of duty are shown in a following table.

HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND - Continued

Comment

Hollow drill steel is a special bar product used in pneumatic drills for mining and other rock-drilling operations. The bars are sold in lengths of about 15 to 21 feet, and have a diameter ranging from 7/8 to 1½ inches. They are commonly hexagonal, round, or quarter octagon in cross section, and have a centrally located longitudinal and circular hole. Water forced through the hole removes chips and dust and keeps the drill cool. The steel, usually of high carbon non-alloy grade, must be of very high quality because of the severe service conditions, under which it is used. Before the war, the domestic base price ranged from about 9 to 12 cents per pound.

Before 1913, practically all United States requirements were met by imports from Sweden. Since that time, production in this country has developed. The Crucible Steel Co. of America has been the principal domestic producer, but there are several others. According to information collected by the Tariff Commission some time ago, United States production for sale 1/ amounted to about 4,800 short tons valued at $1,032,000 in 1929 and to 3,500 short tons valued at $749,000 in 1933. Data for more recent years are not available.

It is estimated that in certain recent prewar years imports were equal to one-third of domestic production but were considerably greater than exports. For many years the Swedish product has been highly regarded in the United States, but the domestic product has been so improved in quality that it is generally equal to the imported. Heat-treated alloy-steel detachable bits are being used in the United States to an increasing extent and these are supplied almost entirely from domestic sources. The increased use of this partial substitute tends to reduce the consumption of hollow drill steel.

The following table shows imports for consumption by value brackets, kinds, and principal sources in 1939 together with the ad valorem equivalents of the duties in paragraph 304 and other paragraphs. For all value brackets combined, Sweden has accounted for more than 90 percent of imports over a period of years. The great bulk of imports have been entered in the 5- to 8-cents-per-pound value bracket for many years.

1/ In some instances, sales or shipments were reported instead of production.

HOLLOW BARS AND HOLLOW DRILL STEEL VALUED AT MORE THAN 4 CENTS PER POUND - Continued

Hollow bars and hollow drill steel valued at more than 4 cents per pound: United States imports for consumption, by kind, with principal sources, 1939

| Value bracket and kind | Total value | Principal sources | | | | Ad valorem equivalents of duties in | | |
|---|---|---|---|---|---|---|---|---|
| | | Sweden | CANADA | UNITED KINGDOM | BELGIUM | Par. 304 | Other pars. | Total |
| | Foreign value expressed in dollars | | | | | Percent | | |
| 4-5¢ lb. | | | | | | | | |
| Carbon 1/ | 928 | 928 | - | - | - | 36.7 | - | 36.7 |
| 5-8¢ lb. | | | | | | | | |
| Carbon | 164,782 | 164,763 | - | - | - | 31.7 | - | 31.7 |
| Alloy | 27,584 | 7,406 | - | - | - | 31.1 | 16.7 | 47.8 |
| 8-12¢ lb. | | | | | | | | |
| Carbon | 4,171 | 2,545 | 1,626 | - | - | 20.0 | - | 20.0 |
| Alloy | 419 | 327 | - | - | 92 | 20.0 | 8.9 | 28.9 |
| Alloy, cold rolled, etc. 2/ | 34 | - | - | - | - | 35.3 | 11.8 | 47.1 |
| 12-16¢ lb. | | | | | | | | |
| Carbon | 25 | - | 25 | - | - | 32.5 | - | 32.5 |
| Over 16¢ lb. | | | | | | | | |
| Carbon | 15 | 15 | - | - | - | 20.9 | - | 20.9 |
| Alloy | 1,705 | 1,705 | - | - | - | 23.2 | 10.2 | 33.4 |
| Alloy, cold rolled, etc. 2/ | 18 | - | - | - | - | 22.2 | 16.7 | 38.9 |

1/ 1938 imports. There were no imports in 1939.
2/ From Germany. Imports were assessed at the rates of the Act of 1930.
Source: Official statistics of the U. S. Department of Commerce.

STEEL INGOTS, BILLETS, DIE BLOCKS, ETC.

Stat. import classes (1939): 6041.0-.8; 6042.0-.8; 6044.0-.8

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Sweden | UNITED KINGDOM | Canada | BELGIUM |
| | Quantity (short tons) | | | | | | |
| 1937- | 56,636,945 | 383,732 | 2,586 | 2,151 | 63 | 10 | 68 |
| 1938- | 31,751,990 | 190,504 | 956 | 599 | 275 | 10 | 34 |
| 1939- | 52,798,714 | 244,688 | 933 | 820 | 15 | 13 | 83 |
| 1943- | 88,836,512 | 3/2,084,102 | 4/3,759 | - | - | 3,649 | - |
| | Value (dollars) | | | | | | |
| 1937- | Not available | 14,440,595 | 266,510 | 204,027 | 37,778 | 5,306 | 3,387 |
| 1938- | | 6,592,808 | 105,190 | 61,888 | 35,080 | 1,433 | 2,136 |
| 1939- | | 8,798,996 | 102,763 | 89,955 | 7,098 | 2,805 | 2,434 |
| 1943- | | 3/99,216,044 | 4/875,834 | - | - | 848,086 | - |

1/ Includes steel ingots and steel for castings.
2/ Includes steel ingots, blooms, billets, slabs, sheet bars, tinplate bars, and steel castings.
3/ Includes 1,881,283 short tons, valued at $89,582,246 exported under lend-lease
4/ Free for Government use, 1,784 short tons valued at $482,988.
Source: Production from statistics of the American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304 | | | |
| Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks; billets, whether solid or hollow; shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; all descriptions and shapes of dry, sand, loam, or iron molded steel castings; all the foregoing: | | | |
| Valued at not above 1½¢ lb. | 3/10¢ lb. | 1/4¢ lb. 2/ | BELGIUM, UNITED KINGDOM |
| Valued above 1½ and not above 2½¢ lb.: | | | |
| Billets, whether solid or hollow, weighing more than 30 lbs. per linear foot; steel ingots, cogged ingots, blooms and slabs | 1/2¢ lb. | 3/8¢ lb. 2/ | do. |
| All other | 1/2¢ lb. | 2/5¢ lb. 2/ | do. |
| Valued above 2½ and not above 3½¢ lb. | 8/10¢lb. | 20% ad val. 2/ | do. |

STEEL INGOTS, BILLETS, DIE BLOCKS, ETC.-Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Steel ingots, cogged ingots, etc.-Continued | | | |
| Valued above 3½ and not above 5¢ lb. | 1¢ lb. | 20% ad val. 3/ | BELGIUM, UNITED KINGDOM |
| Valued above 5 and not above 8¢ lb. | 1-7/10¢ lb. | 20% ad val. 3/ | do. |
| Valued above 8 and not above 12¢ lb. | 2½¢ lb. | 2½¢ lb. | do. |
| Valued above 12 and not above 16¢ lb. | 3½¢ lb. | 3½¢ lb. | do. |
| Valued above 16¢ lb. | 20% ad val. | 20% ad val. | do. |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

2/ Trade agreement with Belgium, effective May 1935.

3/ Trade agreement with Sweden, effective August 1935.

Note.- A discussion of the ad valorem equivalents of the rates of duty on all products dutiable under the provisions of paragraph 304 is contained in the summary digest on that paragraph.

## Comment

Of all the products included within the scope of this digest (see tariff discussion above), steel ingots and semifinished steel (cogged ingots, blooms, slabs, and billets) are by far the most important in terms of tonnages produced. Production of these products for sale, however, is relatively unimportant because the great bulk of the output is consumed in the same plants where it is produced. Large integrated plants, which account for most of the output, find it more profitable to market their products in more advanced forms.

Between January 1, 1940 and June 30, 1945, United States steel-making capacity increased about 17 percent, reaching a peak of 95.5 million tons in mid-1945. Many large and efficient steel-making and steel-rolling facilities were constructed during the war. The Federal Government participated in this development by the expenditure of over a billion dollars. Part of the Government capacity has now been sold to private interests. The large development of steel-making capacity on the west coast and in Utah may be expected to alter the intersectional competitive situation within the industry in future years. Since the end of the war the total capacity of the industry has declined somewhat, reflecting chiefly the abandonment of some of the older steel-making facilities. As indicated in the table below, Bessemer steel capacity declined during the period covered, while open-hearth and electric capacity increased.

Steel ingots and steel for castings: United States capacity in 1940, 1945, and 1946

(Thousands of short tons)

| | Capacity on Jan. 1, 1940 | Capacity on June 30, 1945 | Capacity on Jan. 1, 1946 |
|---|---|---|---|
| Steel ingots and steel for castings: | | | |
| Open-hearth | 73,721 | 84,171 | 81,237 |
| Electric and crucible | 1,888 | 5,460 | 5,500 |
| Bessemer | 6,010 | 5,874 | 5,154 |
| Total | 81,619 | 95,505 | 91,891 |

Source: Statistics of the American Iron and Steel Institute.

STEEL INGOTS, BILLETS, DIE BLOCKS, ETC.-Continued

Total imports of the products covered by this digest have been equal to only a small fraction of 1 percent of domestic production for many years, and have been greatly exceeded by exports, especially under war conditions.

United States imports for consumption, by value brackets, kinds, and principal sources in 1939 are shown below.

Steel ingots, billets, and die blocks, etc.: United States imports for consumption, by value brackets, kinds, and principal sources, 1939

(Dollars)

| Value bracket and product | Total | | Sweden | | UNITED KINGDOM | | BELGIUM | |
|---|---|---|---|---|---|---|---|---|
| | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy |
| Not over 1½¢ lb.: | | | | | | | | |
| Die blocks, etc. | 2,215 | - | - | - | - | - | 2,052 | - |
| 2½-3½¢ lb.: | | | | | | | | |
| Billets | ,669 | 3,043 | 637 | 3,043 | 32 | - | - | - |
| 3½-5¢ lb.: | | | | | | | | |
| Billets | 9,778 | 33,481 | 9,753 | 33,481 | 25 | - | - | - |
| 5-8¢ lb.: | | | | | | | | |
| Ingots, etc. | 19 | 1,441 | - | 1,441 | - | - | - | - |
| Billets | 4,238 | 15,397 | 4,215 | 15,365 | - | 32 | 23 | - |
| Die blocks, etc. | 443 | - | - | - | 347 | - | 19 | - |
| Total | 4,700 | 16,838 | 4,215 | 16,806 | 347 | 32 | 42 | - |
| 8-12¢ lb.: | | | | | | | | |
| Ingots, etc. | - | 373 | - | 373 | - | - | - | - |
| Billets | 318 | 14,346 | - | 13,862 | 309 | 484 | - | - |
| die blocks, etc. | 236 | - | - | - | - | - | - | - |
| Total | 554 | 14,719 | - | 14,235 | 309 | 484 | - | - |
| 12-16¢ lb.: | | | | | | | | |
| Billets | - | 989 | - | 989 | - | - | - | - |
| Die blocks, etc. | 390 | - | - | - | 13 | - | 170 | - |
| Total | 390 | 989 | - | 989 | 13 | - | 170 | - |
| Over 16¢ lb.: | | | | | | | | |
| Ingots, etc. | - | 2,176 | - | - | - | - | - | - |
| Billets | 1,492 | 7,156 | 1,492 | 5,277 | - | 1,879 | - | - |
| Die blocks, etc. | 4,563 | - | 27 | - | 3,977 | - | 170 | - |
| Total | 6,055 | 9,332 | 1,519 | 5,277 | 3,977 | 1,879 | 170 | - |
| Total, all brackets | 24,361 | 78,402 | 16,124 | 73,831 | 4,703 | 2,395 | 2,434 | - |

Source: Official statistics of the U. S. Department of Commerce.

The competitive position of the domestic industry both in interior and seaboard markets was strengthened during the war by the construction of large and efficient facilities for making and rolling steel. Tonnage steel imports are marketed in seaboard areas chiefly because of the high cost of rail transportation in the United States. High-priced steel can be marketed in practically all parts of the country, but the consumption of such steel is relatively small.

STEEL CIRCULAR SAW PLATES

Stat. import classes (1939): 605.30-605.37

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Sweden | UNITED KINGDOM | Canada | BELGIUM |
| | Quantity (short tons) | | | | | | |
| 1937 | 10,967 | Not available | 30 | 14 | 13 | 3 | N |
| 1938 | n.a. | | 35 | 28 | 5 | 3 | 0 |
| 1939 | 6,503 | | 58 | 37 | 12 | 9 | N |
| 1943 | n.a. | | 3 | - | - | 3 | E |
| | Value (dollars) | | | | | | |
| 1937 | 3,499,764 | Not available | 11,624 | 4,514 | 4,502 | 1,600 | N |
| 1938 | n.a. | | 14,233 | 8,821 | 2,530 | 1,931 | 0 |
| 1939 | 1,865,825 | | 23,659 | 11,998 | 5,826 | 5,508 | N |
| 1943 | n.a. | | 1,712 | - | - | 1,712 | E |

1/ Saw plates made for sale and for interplant transfer.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304 | | | |
| Steel plates, not specially provided for: | | | |
| Circular saw plates: | | | |
| Valued at not above 1½¢ lb. --- | 11/20¢ lb. | 1/2¢ lb. 2/ | BELGIUM, UNITED KINGDOM |
| Valued above 1½ and not above 2½¢ lb. | 3/4¢ lb. | 13/20¢ lb. 2/ | do. |
| Valued above 2½ and not above 3½¢ lb. | 1-1/20¢ lb. | 20% ad val.+ 1/4¢ lb. 3/ | do. |
| Valued above 3½ and not above 5¢ lb. | 1-1/4¢ lb. | 20% ad val.+ 1/4¢ lb. 3/ | do. |
| Valued above 5 and not above 8¢ lb. | 1-19/20¢ lb. | 20% ad val.+ 1/4¢ lb. 3/ | do. |
| Valued above 8 and not above 12¢ lb. | 2-3/4¢ lb. | 2-3/4¢ lb. | do. |
| Valued above 12 and not above 16¢ lb. | 3-3/4¢ lb. | 3-3/4¢ lb. | do. |
| Valued above 16¢ lb. ---------- | 20% ad val. + 1/4¢ lb. | 20% ad val.+ 1/4¢ lb. | do. |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold hammering, etc., under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations).
2/ Trade agreement with Belgium, effective May 1935.
3/ Trade agreement with Sweden, effective August 1935.
Note.- Ad valorem equivalents of the above specific rates of duty are shown in the table below.

STEEL CIRCULAR SAW PLATES--Continued

Comment

Steel circular saw plates, the principal material for making finished circular saws, are high-priced specialties. Before the war, the price of domestic saw plates ranged from about 4.5¢ to 21¢ per pound f.o.b. Pittsburgh, Pa. The Crucible Steel Co. of America is an important producer of saw plates made for sale as such. Saw plates are also produced by Henry Disston and Sons, Philadelphia, Pa., and Simonds Saw and Steel Co., Lockport, N. Y., but the bulk of their output is made by them into finished saws. There are several other producers of saw plates.

Alloy steels are replacing carbon steels to a considerable extent and the inserted tooth type of saw is used for the most severe service conditions. In such saws the teeth are often made of high speed steel or of tungsten and other carbides.

The ratio of imports to domestic production has been less than 1 percent for many years. Imported saw plates, especially those coming from the United Kingdom and Sweden, usually command higher prices than the domestic product.

During the years covered by the above table, there were no entries of saw plates valued at less than 8 cents per pound. The following table shows United States imports for consumption by value brackets, kinds, and principal sources in 1939 together with ad valorem equivalents of the full duties.

Steel circular saw plates: United States imports for consumption, by value brackets, kinds, with principal sources, together with ad valorem equivalents, 1939

| Value bracket and product | Total | | Sweden | | UNITED KINGDOM | | Ad valorem equivalent of full duty, 1939 1/ | |
|---|---|---|---|---|---|---|---|---|
| | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy | Carbon | Alloy |
| | | | | | | | Percent | Percent |
| 8-12¢ lb.: | | | | | | | | |
| Saw plates | $461 | - | $273 | - | $188 | - | 25 | - |
| 12-16¢ lb.: | | | | | | | | |
| Saw plates | 388 | $1,092 | 271 | $85 | 117 | - | 28 | 33 |
| Saw plates, galvanized, etc. | - | 2,873 | - | 2,873 | - | - | - | 36 |
| Over 16¢ lb.: | | | | | | | | |
| Saw plates | 2,102 | 3,429 | 507 | 3,252 | - | $144 | 21 | 29 |
| Saw plates, galvanized, etc. | 543 | 12,771 | - | 4,737 | - | 5,377 | 21 | 31 |
| Total, all brackets. | 3,494 | 20,165 | 1,051 | 10,947 | 305 | 5,521 | - | - |

1/ Calculated on total duties paid, including duties for alloy content.
Source: Official statistics of the U. S. Department of Commerce.

STEEL SHEETS AND PLATES AND STEEL, NOT SPECIALLY PROVIDED FOR

Stat. import classes (1939): 605.50-57

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 1/ | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | UNITED KINGDOM | France | Sweden |
| | Quantity (short tons) | | | | | | |
| 1937 | Not | Not | 2,248 | 1,257 | 78 | 820 | 36 |
| 1938 | avail- | avail- | 404 | 144 | 45 | 155 | 6 |
| 1939 | | | 677 | 307 | 43 | 288 | 28 |
| 1943 | able | able | 2/ 62 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not | Not | 97,211 | 43,492 | 16,846 | 24,169 | 6,045 |
| 1938 | avail- | avail- | 29,634 | 7,420 | 11,005 | 4,662 | 1,912 |
| 1939 | | | 39,508 | 14,471 | 9,985 | 8,764 | 5,422 |
| 1943 | able | able | 2/ 5,883 | - | - | - | - |

1/ Statistics of production and exports of all plates and sheets are included in digests covering paragraphs 307 and 308, respectively, where most of the imports of plates and sheets are entered. Data for sheets and plates such as would be dutiable under paragraph 304 are not available but production is many times larger, and exports several times larger than imports.

2/ Free for Government use, 56 short tons, valued at $2,601 from Canada.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 304 | | | |
| Steel sheets and plates (except circular saw plates) and steel not specially provided for ***: | | | |
| Valued at not above 1½¢ per pound | 3/10¢ lb. | 2/ 1/4¢ lb. | BELGIUM, UNITED KINGDOM |
| Valued above 1½ and not above 2½¢ per pound | 5/10¢ lb. | 2/ 2/5¢ lb. | do. |
| Valued above 2½ and not above 3½¢ per pound | 8/10¢ lb. | 3/ 20% ad val. | do. |
| Valued above 3½ and not above 5¢ per pound | 1¢ lb. | 3/ 20% ad val. | do. |
| Valued above 5 and not above 8¢ per pound | 1-7/10¢ lb. | 3/ 20% ad val. | do. |
| Valued above 8 and not above 12¢ per pound | 2-1/2¢ lb. | 2-1/2¢ lb. | do. |
| Valued above 12 and not above 16¢ per pound | 3-1/2¢ lb. | 3-1/2¢ lb. | do. |
| Valued above 16¢ per pound | 20% ad val. | 20% ad val. | do. |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold hammering, etc., under paragraph 315 (the additional rates in paragraph 315 are not under consideration in the proposed negotiations).

2/ Trade agreement with Belgium, effective May 1935.

3/ Trade agreement with Sweden, effective August 1935.

Note.- Ad valorem equivalents are shown in the table below.

STEEL SHEETS AND PLATES AND STEEL, NOT SPECIALLY PROVIDED FOR--Continued

Comment

Floor plates, hacksaw and cutlery sheets, miscellaneous grades of plates and sheets and other steel not specially provided for are covered by this digest. Floor plates are low-priced tonnage steel products with anti-skid surfaces for foot or vehicular traffic. The anti-skid type has projections made by rolling, and is sold in many different sizes and grades.

Sheets used for making hacksaw blades are often of alloy steel. Cutlery sheets are made of carbon or alloy steel, and are usually high in carbon content. Both hacksaw and cutlery sheets require high-grade steel in their manufacture.

Subsidiaries of the U. S. Steel Corp. in the Pittsburgh and Chicago districts are the principal producers of floor plates. The Inland Steel Co. in the Chicago district and smaller companies such as Alan Wood Steel Co. and Central Iron and Steel Co. in the eastern Pennsylvania district, are also important producers. Hacksaw and cutlery sheets are produced by tool-steel companies, which use electric furnace steels for their relatively small-scale production.

United States imports for consumption by value brackets, kinds, and principal sources are shown below for 1939 together with the ad valorem equivalents of the full duties in that year.

Sheets and plates and steel, n.s.p.f.: United States imports for consumption, by value brackets, kinds, with principal sources, together with ad valorem full duty equivalents, 1939

| Value bracket and kind | Total value | Principal sources | Ad valorem equivalent of full duty 1/ |
|---|---|---|---|
| | | | Percent |
| Not over 1½¢ lb.: | | | |
| Carbon steel | $8,492 | France, $8,446; BELGIUM, $30; Canada, $16 | 17 |
| 1½ - 2½¢ lb.: | | | |
| Carbon steel | 12,967 | BELGIUM, $12,958; UNITED KINGDOM, $9 | 17 |
| 2½ - 3½¢ lb.: | | | |
| Carbon steel | 1,760 | BELGIUM, $1,297; Canada, $463 | 20 |
| 3½ - 5¢ lb.: | | | |
| Alloy steel | 11 | Sweden, $11 | 24 |
| 5 - 8¢ lb.: | | | |
| Carbon steel | 80 | Sweden, $43; Mexico, $30; Canada, $7 | 20 |
| 8 - 12¢ lb.: | | | |
| Carbon steel | 8,415 | UNITED KINGDOM, $4,624; Sweden, $3,791 | 24 |
| Alloy steel | 6,534 | UNITED KINGDOM, $5,189; Sweden, $1,265; Germany, 2/ $80 | 35 |
| 12 - 16¢ lb.: | | | |
| Carbon steel | 117 | BELGIUM, $93; UNITED KINGDOM, $24 | 26 |
| Alloy steel | 220 | Sweden, $220 | 33 |
| Over 16¢ lb.: | | | |
| Carbon steel | 661 | France, $318; UNITED KINGDOM, $139; BELGIUM, $93 | 20 |
| Alloy steel | 271 | Canada, $179; Sweden, $92 | 29 |

1/ Calculated on total duties paid, including duties for alloy content.
2/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce.

Imports of the products here under consideration are estimated to be equivalent to less than 1 percent of production and probably are much smaller than exports.

## IRON AND STEEL BOILER AND OTHER PLATE, NOT THINNER THAN 109/1,000 INCH, AND SKELP

Stat. import classes (1939): 6039.0, 6039.1, 6039.3

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Canada | UNITED KINGDOM |
| | Quantity (short tons) | | | | | |
| 1937 | 6,186,000 | 547,000 | 229 | 135 | 1 | 1 |
| 1938 | 3,323,000 | 317,000 | 398 | 382 | 4 | 2 |
| 1939 | 5,432,000 | 384,000 | 20 | 16 | 3 | - |
| 1943 | 16,141,000 | 4/ 871,000 | 396 | - | 396 | - |
| | Value (dollars) | | | | | |
| 1937 | Not available | 26,521,000 | 8,105 | 3,910 | 71 | 713 |
| 1938 | | 14,028,000 | 18,900 | 12,897 | 196 | 1,043 |
| 1939 | | 15,882,000 | 967 | 479 | 141 | - |
| 1943 | | 4/ 53,107,000 | 30,921 | - | 30,921 | - |

1/ Includes plates and skelp.
2/ Includes boiler and other plates, fabricated plates, and skelp.
3/ Includes all imports under paragraph 307.
4/ Includes 409,000 short tons valued at $27,472,000 exported under lend-lease.
Source: Production from statistics of the American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 307 | | | |
| Boiler or other plate iron or steel, except crucible plate steel and saw plate steel, not thinner than one hundred and nine one-thousandths of one inch, cut or sheared to shape or otherwise, or unsheared, and skelp iron or steel sheared or rolled in grooves: | | | |
| Valued not over 3 cents per pound | 0.5¢ lb. | 1/ 0.35¢ lb. | BELGIUM |
| Valued over 3 cents per pound | 20% ad val. | 20% ad val. | BELGIUM and UNITED KINGDOM |

1/ Trade agreement with Belgium, effective May 1935.
Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc. under paragraph 309 (see separate digest), and for cold hammering, etc. under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations). Imports from Germany were dutiable at the prearrangement rates. The ad valorem equivalent of the base specific rate (0.35¢ lb.) on all imports in 1939 subject to such base rate only, except imports from Germany, was 22.5 percent.

IRON AND STEEL BOILER AND OTHER PLATE, NOT THINNER THAN 109/1,000 INCH, AND SKELP - Continued

Comment

Plates and skelp are rolling-mill products. The principal uses of plates are for the construction of boilers, tanks, steel railway cars, ships, and bridges, and for other structural purposes. The production of plates increased greatly during the war because of requirements for the construction of ships and other war equipment. Skelp consists of long strips used in the manufacture of welded pipe.

For many years the ratio of imports to production of plates and skelp has been only a small fraction of 1 percent. Imports are also very small in comparison with exports. The large, integrated steel companies account for the bulk of the United States production of plate and skelp. The competitive position of the domestic industry was strengthened during the war by the construction and modernization of productive facilities and the industry has the additional advantage in that some of the more efficient facilities are located in coastal areas near shipyards. Most of the small imports are marketed in coastal areas because rail transportation costs prevent rail shipment any great distance.

The following table, which gives imports by value brackets, shows that imports from Belgium have been wholly of plate and skelp valued at 3 cents per pound or less and that imports from the United Kingdom have been valued at more than 3 cents per pound.

Iron or steel boiler plate not thinner than 109/1000 inch, and skelp: United States imports for consumption, by kinds with principal sources, 1937-39

| Kind | Total value | Principal sources |
|---|---|---|
| Boiler or other plate iron and steel, not thinner than 109/1000 inch, and skelp iron and steel: | | |
| Valued not over 3¢ per pound: | | |
| 1937 | $6,167 | BELGIUM, $3,910; France, $1,591 |
| 1938 | 13,093 | BELGIUM, $12,897; Canada, $196 |
| 1939 | 566 | BELGIUM, $479; Canada, $87 |
| Valued over 3¢ per pound: | | |
| 1937 | 1,938 | Sweden, $945; UNITED KINGDOM, $713 |
| 1938 | 5,807 | Germany, 1/ $4,764; UNITED KINGDOM, $1,043 |
| 1939 | 401 | Switzerland, $338; Canada, $54 |

1/ Includes Austria beginning 1938.
Source: Official statistics of the U. S. Department of Commerce.

## IRON OR STEEL SHEETS, THINNER THAN 109/1,000 INCH, AND SKELP

Stat. import classes (1939): 605.40-605.48

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Germany 1/ | |
| | Quantity (short tons) | | | | | |
| 1937 | 8,780,247 | 423,714 | 7,578 | 6,692 | 630 | |
| 1938 | 5,794,888 | 323,547 | 6,329 | 3,104 | 3,210 | |
| 1939 | 10,032,076 | 437,294 | 840 | 613 | 203 | |
| 1943 | 9,403,002 | 2/ 776,888 | 3/ 5 | - | - | |
| | Value (dollars) | | | | | |
| 1937 | Not | 32,418,775 | 274,481 | 243,522 | 21,294 | |
| 1938 | avail- | 24,077,475 | 290,289 | 143,783 | 145,556 | |
| 1939 | able | 30,105,546 | 31,287 | 18,927 | 11,368 | |
| 1943 | | 2/ 53,971,993 | 3/ 2,548 | - | - | |

1/ Includes Austria beginning 1938.
2/ Includes 434,461 short tons, valued at $30,079,525 exported under lend-lease.
3/ Imported from Canada.
Source: Production (hot rolled sheets-skelp production included under par. 307) from statistics of the American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 308 | | | |
| Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel: | | | |
| Valued at 3 cents lb. or less: | | | |
| 109/1000 - 38/1000 in. thick | 0.45¢ lb. | 1/ 0.35¢ lb. | BELGIUM |
| 38/1000 - 22/1000 in. thick | .55¢ lb. | 1/ .45¢ lb. | do. |
| 22/1000 - 10/1000 in. thick | .75¢ lb. | 1/ .60¢ lb. | do. |
| Thinner than 10/1000 in. | .85¢ lb. | 1/ .70¢ lb. | do. |
| Corrugated or crimped | .75¢ lb. | 1/ .60¢ lb. | do. |
| Valued over 3 cents lb. | 20% ad val. | 20% ad val. | do. |
| Corrugated or crimped | 20% ad val. | 20% ad val. | do. |

1/ Trade agreement with Belgium, effective May 1935.
Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold hammering, etc. under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations). Imports from Germany were dutiable at the preagreement rates. The ad valorem equivalents of the base specific rates on all imports in 1939 subject to such base rates only, except imports from Germany, were as follows: 0.35 cent per pound, equivalent to 23 percent; and .45 cent per pound, equivalent to 20 percent. There were no imports under either the .60 cent or .70 cent rate.

IRON OR STEEL SHEETS, THINNER THAN 109/1,000 INCH, AND SKELP--Continued

## Comment

Iron and steel sheets are flat rolled products ranging up to 72 inches or more in width. For tariff purposes sheets and plates thinner than 0.109 inch are classified as sheets.

The bulk of the domestic output of sheets is of plain or carbon steel, but some sheets are alloyed with silicon for use in the electrical industry and others with copper, chromium, or other metal to resist corrosion or for other purposes. Skelp iron or steel is flat strip-like material used in making welded pipes and tubes. Sheared or grooved skelp is provided for by paragraph 307 (see separate digest) and the other grades in paragraph 308.

The automotive industry normally accounts for about 40 percent of total consumption; it uses sheets for such purposes as the construction of bodies, panels, fenders, and hoods. The construction industry uses considerable tonnages of galvanized sheets, sometimes corrugated, and other industries producing such articles as steel barrels, refrigerators, and metal furniture account for the remainder of the sheet output.

On January 1, 1945, annual United States capacity for the production of hot rolled sheets amounted to 17,435,000 tons. The United States Steel Corp. accounted for 4,331,000 tons, National Steel Corp. for 2,338,000 tons, and American Rolling Mill Co. for 2,165,000 tons. Ohio, Indiana, and Pennsylvania are normally the principal producing states in the order named.

During the past 20 years the sheet-rolling branch of the steel industry has been revolutionized through the development of modern continuous mills, which produce a better product with lower labor costs than the old-type mills which have been virtually displaced. The high investment cost of continuous mills (up to $25,000,000 or more for a wide hot-rolling and cold-rolling mill) and the lack of home markets as large as those of the United States have tended to prevent foreign countries except the United Kingdom, Germany, Japan, and Australia from using the continuous process. The domestic sheet-steel industry is characterized by great total volume of business and relatively large size of individual transactions. Most of the business is normally done on a contract basis with the requirement of prompt delivery against exacting specifications. The bulk of the skelp is not sold on the open market but is used by the producer in making welded pipe.

Imports of sheets and skelp have been equivalent to a small fraction of 1 percent of production, and the domestic industry is definitely on an export basis. Before the war, a considerable part of the imported sheets were used for making steel drums and other containers for export with benefit of drawback. Imports of sheets by kind and principal sources in 1939 are shown below. Imports of skelp were nil in 1939, and nil or negligible in other recent years.

Sheets and skelp:[1] United States imports for consumption, by principal kinds with sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Sheets of iron or steel and boiler or other plate iron or steel, thinner than 109/1000 in. | | |
| Valued at 3¢ lb. or less: | | |
| 109/1000 - 38/1000 in. thick | $30,592 | BELGIUM, $18,579; Germany,[2] $11,368 |
| 38/1000 - 22/1000 in. thick | 210 | BELGIUM, $210 |
| Valued over 3¢ lb. | 485 | United Kingdom, $305; BELGIUM, $138 |

1/ There were no imports of skelp in 1939. 2/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce.

IRON OR STEEL SHEETS, THINNER THAN 109/1,000 INCH, AND SKELP--Continued

Most of the modern continuous sheet mills in the United States are located in the interior near their principal markets. In these areas, imports of low-priced grades are unable to compete, chiefly because of rail transportation costs in the United States which are high in relation to the value of the product. Continuous mills in Maryland and Alabama are able to meet the competition from imports in markets along the North Atlantic and Gulf coasts, respectively. The far West may be in a more favorable competitive position than before the war if modern continuous mills are installed in that area.

Stat. import class (1939) 679.47

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption 1/ from-- | | |
|---|---|---|---|---|---|
| | | | All countries | Germany 2/ | UNITED KINGDOM |
| | Quantity (short tons) | | | | |
| 1937 | Not available 3/ | Not available 4/ | 6 | 6 | N |
| 1938 | | | 2 | 2 | O |
| 1939 | | | 1 | 1 | N |
| 1943 | | | - | - | E |
| | Value (dollars) | | | | |
| 1937 | Not available | Not available 4/ | 7,770 | 7,770 | N |
| 1938 | | | 2,183 | 2,183 | O |
| 1939 | | | 1,681 | 1,681 | N |
| 1943 | | | - | - | E |

1/ Imports are negligible in comparison with production. In the years shown, there were no imports on which rates additional to the base rate were imposed.
2/ Includes Austria beginning 1938. 3/ Estimated at about 5,000 tons in 1935.
4/ Exports are probably small but larger than imports.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 309 | | | |
| Sheets or plates of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding -- | 30 | 30 | UNITED KINGDOM |

Note.- In addition to the base rate shown above, imports of sheets and plates are subject to additional duties for galvanizing, etc., under paragraph 309 (see separate digest) and imports of plates for cold hammering, etc., under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations).

Comment

Laminated plates or sheets generally consist of a low-priced steel backing (sometimes brass or other metal) clad with a thin layer of nickel, nickel alloy, stainless steel, or other high-priced metal or alloy. The cladding, about 10 or 20 percent of the total thickness, may be on one side or on both sides. Laminated material is widely used in the chemical and food-handling industries, where resistance to heat and corrosion is important, and in some applications where good appearance and color are important.

LAMINATED METAL SHEETS AND PLATES-Continued

Clad plates and sheets are generally made by steel plants which also make other products. The United States is the principal world producer, and domestic output is increasing. A high degree of skill is required in production and several patents have been granted on manufacturing processes, both here and abroad. Before the war Germany and the United Kingdom were the principal foreign producers and exporters.

Since 1929 Germany has accounted for more than 90 percent of United States imports. The United Kingdom supplied most of the remainder. United States production was estimated at about 5,000 tons in 1935 and normal postwar production may be expected to surpass this amount by a considerable margin. Imports have been very small in comparison with domestic production.

SPECIFIED IRON AND STEEL PRODUCTS, GALVANIZED, COLD ROLLED, ETC. - ADDITIONAL DUTIES

Stat. import classes (1939): Various

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | All countries | BELGIUM | Sweden | United Kingdom |
|---|---|---|---|---|---|---|
| | Quantity (short tons) | | | | | |
| 1937 --- | 4,243,078 | 90,741 | 2,335 | 2,180 | 11 | - |
| 1938 --- | 3,043,218 | 85,161 | 1,375 | 1,349 | 12 | 6 |
| 1939 --- | 4,686,307 | 124,284 | 58 | 11 | 28 | 14 |
| 1943 --- | 2,794,667 | 3/ 72,417 | 4/ 9 | - | - | - |
| | Value (dollars) | | | | | |
| 1937 --- | Not available | 7,470,012 | 129,859 | 120,229 | 1,734 | - |
| 1938 --- | | 7,020,398 | 87,379 | 80,602 | 3,865 | 1,378 |
| 1939 --- | | 9,594,599 | 19,816 | 451 | 10,475 | 5,682 |
| 1943 --- | | 3/ 5,801,469 | 4/ 2,206 | - | - | - |

1/ Includes cold-rolled sheets and galvanized sheets.
2/ Includes galvanized iron and steel sheets only.
3/ Includes 45,153 short tons valued at $3,380,354 exported under lend-lease.
4/ Imported from Canada.

Source: Production from American Iron and Steel Institute, Annual Statistical Report; exports and imports from official statistics of the U. S. Department of Commerce.

Note.- Import statistics are also shown in digests covering paragraphs where the base duties or other additional dutes are imposed.

| | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 309: | | | |
| Iron or steel sheets, plates, bars and rods, and hoop, band, or scroll iron or steel, excpt tin plate, etc., if galvanized or coated with zin or other metal ---------- | 2/10¢ lb. additional 1/ | 2/10¢ lb. additional 1/ | BELGIUM |
| Iron or steel plates or sheets, other than polished, etc., if pickled, cleaned, or cold rolled -- | 2/10¢ lb. additional 1/ | 2/10¢ lb. additional 1/ | BELGIUM |

1/ In addition to base rates and other applicable additional rates.

Note.- In addition to the above rates of duty for galvanizing etc., under paragraph 309, imports are subject to base rates under paragraphs 303, 304, 307, 308, 313, 314, and 315 (see separate digests) and to additional duties for alloy content under paragraph 305 (see separate digest). The ad valorem equivalent of the 2/10¢ additional specific rate shown above on all imports in 1939 subject to this rate was 1.2 percent (calculated of coursenecessarily) on the total value of the material and not on the value added by galvanizing, etc. If calculated on such added value only the equivalent of the duty would be very much higher.

SPECIFIED IRON AND STEEL PRODUCTS, GALVANIZED, COLD ROLLED, ETC. - ADDITIONAL DUTIES-Continued

Comment

The products discussed here have been advanced beyond hot rolling by pickling, cold rolling, coating with metal, or other processes. Cold-rolled black sheets (uncoated) and galvanized sheets are the most important because they are produced and consumed in large quantities. Cold rolling imparts a smooth finish and the desired temper. Galvanizing and other metal coating increase the resistance to corrosion. Cold-rolled sheets are used chiefly by the automotive industry, but are also used in producing refrigerators and containers, and for many other purposes. Galvanized and other coated sheets are used chiefly in the construction industry (roofing, siding, etc.), but also in the container and many other industries.

The United States is the leading producer of cold-rolled, galvanized, and other similarly advanced steel products and has more efficient equipment than any other country. During the war, sheets were coated with zinc by electrolytic methods, which had not been used previously for this purpose on a commercial scale. On the whole, the domestic product is of considerably higher quality than the imported.

Prewar imports were equivalent to only a small fraction of 1 percent of production, and were greatly exceeded by exports. The United Kingdom normally exports considerably larger quantities of galvanized sheets than the United States, although the former country is a smaller producer.

The following tabulation shows imports by principal kinds and sources in 1937-39.

Specified iron and steel products, galvanized, cold rolled, etc.: United States imports for consumption, by principal kinds and sources, 1937-39.

| | Total value | Principal sources | | |
|---|---|---|---|---|
| | | BELGIUM | United Kingdom | Sweden |
| Corrugated galvanized sheets, valued at 3¢ or less per lb: | | | | |
| 1937 | $66,347 | $61,155 | - | - |
| 1938 | 40,569 | 40,569 | - | - |
| 1939 | - | - | | |
| Advanced sheets or skelp, 22/1000-10/1000 in. thick, valued at 3¢ or less per lb: | | | | |
| 1937 | 46,044 | 44,883 | - | - |
| 1938 | 6,513 | 6,513 | - | - |
| 1939 | - | - | - | - |
| Corrugated galvanized sheets, valued over 3¢ lb.: | | | | |
| 1937 | 3,744 | 3,744 | - | - |
| 1938 | 26,719 | 26,463 | 256 | - |
| 1939 | 8 | - | - | - |
| Steel circular saw plates, advanced, valued over 16¢ lb: | | | | |
| 1937 | 730 | - | - | 730 |
| 1938 | 4,700 | - | 1,045 | 2,469 |
| 1939 | 13,314 | - | 5,377 | 4,737 |

Source: Official statistics of the U. S. Department of Commerce.

SPECIFIED IRON AND STEEL PRODUCTS, GALVANIZED, COLD ROLLED, ETC. - ADDITIONAL DUTIES-Continued

The published base price of hot rolled sheets f.o.b. Pittsburgh was 2.2¢ lb. in January 1946. The price of cold rolled sheets was 0.85¢ higher, and of galvanized sheets (24 gage) was 1.5¢ higher. The supplemental duty of 0.2¢ per pound is thus equal to a significant fraction of the added value due to galvanizing, but the base rates on the iron or steel itself are much more important in limiting imports of galvanized cold-rolled, etc., products.

IRON OR STEEL SHEETS AND PLATES, POLISHED, PLANISHED, OR GLANCED

Stat. import class (1939): 6039.7

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption 1/ from-- | | |
|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Germany 2/ |
| | Quantity (pounds) | | | | |
| 1937 | Not available (see text) | Not available | 19,327 | - | 19,102 |
| 1938 | | | 3/ 240 | - | - |
| 1939 | | | 22,783 | 22,783 | - |
| 1943 | | | 3/ 2,005 | - | - |
| | Value (dollars) | | | | |
| 1937 | Not available (see text) | Not available | 2,034 | - | 1,978 |
| 1938 | | | 3/ 17 | - | - |
| 1939 | | | 13,017 | 13,017 | - |
| 1943 | | | 3/ 1,012 | - | - |
| | Unit value (per pound) | | | | |
| 1937 | Not available | Not available | $0.105 | - | $0.104 |
| 1938 | | | 3/ .071 | - | - |
| 1939 | | | .571 | $0.571 | - |
| 1943 | | | 3/ .505 | - | - |

1/ Imports are negligible in comparison with large production and exports. In the years shown, there were no imports on which rates additional to the base rate were imposed. 2/ Includes Austria beginning 1938.

3/ Imported from Canada.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 309 | | | |
| Sheets and plates of iron or steel, polished, planished, or glanced, by whatever name designated | 1¼ | 1¼ | UNITED KINGDOM |

Note.- In addition to the base rate shown above, imports of sheets and plates are subject to additional duties for galvanizing, etc., under paragraph 309 (see separate digest) and imports of plates for cold hammering, etc., under paragraph 315 (the additional rates in paragraph 315 are not under consideration in the proposed negotiations). The ad valorem equivalent of the base specific rate on all imports subject to such base rate only was 12 percent in 1937, 18 percent in 1938, and 2 percent in 1939, when imports came entirely from the United Kingdom and were of high unit value.

## Comment

Polished surfaces are sometimes designated as "planished" if oxidized and as "glanced" if unoxidized; the terms "planished" and "glanced" are little used in current trade practice. The domestic industry produces large but undetermined amounts of polished sheets and plates, greatly exceeding the imports.

IRON OR STEEL SHEETS AND PLATES, POLISHED, PLANISHED, OR GLANCED-Continued

It is probable that for many years imports have been equivalent to less than 1 percent of domestic production, and have been considerably less than exports. Trade reports indicate that fairly large quantities of polished stainless steel sheets have been exported.

# THERMOSTATIC METAL

Stat. import class (1939): 679.49

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | | |
| | Quantity (pounds) | | | | | |
| 1937 | Negligible | Negligible | NONE | NONE | | |
| 1938 | | | | | | |
| 1939 | | | | | | |
| 1943 | | | | | | |
| | Value (dollars) | | | | | |
| 1937 | Negligible | Negligible | NONE | NONE | | |
| 1938 | | | | | | |
| 1939 | | | | | | |
| 1943 | | | | | | |

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 309 | | | |
| Thermostatic metal in sheets, plates, or other forms | 50 | 50 | UNITED KINGDOM |

## Comment

Thermostatic bimetal is a laminated material made by permanently fusing together two sheets of metal. One metal has high thermal expansion and the other low. Strips made of bimetal bend or deflect when exposed to change in temperature. The bending movement is made to close or open electric circuits or fuel valves, by means of which temperatures may be maintained at desired levels. Thermostats are widely used in domestic and industrial refrigeration and heating processes, and in maintaining constant temperatures for critical operations.

Invar steel (containing about 36 percent nickel) is commonly used as the low-expansion material, and special brass for the high-expansion. Other materials are often used for special applications.

Before World War I Germany was practically the sole world producer. During that war it became necessary to produce in the United States. For several years there was only one producer, but by 1929 there were four. According to information supplied by the Thermostatic Bimetal Manufacturers Association, sales amounted to $514,000 in 1929 and $158,000 in 1933. Imports amounted to 510 pounds valued at $320 in 1929, and 1,333 pounds valued at $1,620 in 1933. Imports in subsequent years declined to even lower levels and were nil during the years 1937-43. Since 1929 all of the imports have come from Germany except 12 pounds valued at $9 from Japan in 1929.

TIN PLATE AND TERNEPLATE

Stat. import classes (1939): 6060.14.3

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Canada |
| | Quantity (short tons) | | | | |
| 1937 ---- | 2,869,983 | 403,965 | 276 | 261 | 15 |
| 1938 ---- | 1,729,506 | 180,965 | 122 | 116 | 6 |
| 1939 ---- | 2,687,173 | 348,338 | 111 | 104 | 7 |
| 1943 ---- | 2,159,961 | 1/ 444,177 | 113 | 100 | 13 |
| | Value (dollars) | | | | |
| 1937 ---- | 285,775,176 | 39,939,922 | 71,764 | 67,416 | 4,348 |
| 1938 ---- | n.a. | 19,078,015 | 32,013 | 30,403 | 1,610 |
| 1939 ---- | 264,444,538 | 33,032,832 | 24,809 | 22,926 | 1,883 |
| 1943 ---- | n.a. | 1/ 46,614,533 | 27,136 | 24,089 | 3,047 |

1/ Includes 254,833 tons valued at $26,325,972 exported under lend-lease.

Source: Production (quantity) from Annual Statistical Reports, American Iron and Steel Institute; production (value), exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | Cents per pound | | |
| Par. 310 | | | |
| Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terneplates, and taggers tin * * * | 1 | 1 | UNITED KINGDOM |

Note.- The ad valorem equivalent of the duty amounted to 9 percent in 1939. During 1937-39 and in 1943, imports consisted entirely of tin plate.

Comment

Tin plate and terneplate are light flat-rolled steel products coated with tin or a mixture of tin and lead, respectively. Tin plate finds its principal use in the manufacture of cans, chiefly food cans. It has many minor uses such as in the manufacture of bottle closures, toys, baking pans, and dairy equipment. Taggers tin is tin plate of very light gage used for making metal tags. Terneplate is used for such purposes as roofing, casket manufacture, and in the production of nonfood cans.

Tin plate is produced almost entirely by large integrated steel companies. The development during the past 20 years of hot-rolling and cold-reducing continuous mills, which require large investment, has resulted in the scrapping of practically all of the old-type mills. Nonintegrated producers, once a fairly important factor in the industry, are unable to compete in this field under present conditions. The United States leads the world in the use of continuous sheet-strip mills, although some have been installed in the United Kingdom, Germany, Japan, and possibly in other foreign countries.

The bulk of the output of tin plate is coated by the hot dip method, but during the war the United States installed electrolytic tinning facilities to conserve its limited supplies of tin. Electrolytic tin plate, although more lightly coated than hot-dipped tin plate, is finding many applications in the postwar period. This wartime development may improve the competitive position of the domestic industry. So far as known, no electrolytic tin plate is produced abroad.

For many years imports have been small, and exports have been many times larger than imports.

Before the war the principal United States producers were represented in the International Tinplate Association, a cartel with headquarters in London. This cartel fixed export prices and allocated export quotas. The United Kingdom, although a smaller producer than the United States, was a larger exporter.

STRUCTURAL SHAPES OF IRON OR STEEL, UNFABRICATED AND FABRICATED



Stat. import classes (1939): 6081.0, 6081.1

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | France | Germany 4/ | United Kingdom |
| | Quantity (short tons) | | | | | | |
| 1937 | 3,670,068 | 195,815 | 85,135 | 69,997 | 13,399 | 1,521 | 149 |
| 1938 | 2,082,685 | 136,358 | 44,115 | 33,680 | 8,819 | 1,216 | 332 |
| 1939 | 3,358,985 | 170,933 | 43,752 | 34,052 | 9,186 | 477 | 6 |
| 1943 | 4,575,844 | 5/ 234,356 | 6/ 170 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not available | 10,896,033 | 2,507,368 | 2,062,309 | 353,540 | 81,445 | 7,612 |
| 1938 | | 8,173,477 | 1,485,462 | 1,132,757 | 261,301 | 69,023 | 18,789 |
| 1939 | | 9,055,049 | 1,331,066 | 1,049,581 | 254,881 | 24,743 | 338 |
| 1943 | | 5/ 15,199,687 | 6/ 27,781 | - | - | - | - |

1/ Includes unfabricated heavy and light structural shapes.
2/ Includes unfabricated and fabricated structural shapes.
3/ There were no imports of alloy grades during the years shown.
4/ Includes Austria beginning 1938.
5/ Includes 61,575 short tons valued at $3,777,039 exported under lend-lease.
6/ Principally from Canada.

Source: Production from American Iron and Steel Institute, Annual Statistical Reports; exports and imports from oficial statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| Par. 312 | | | |
| Beams, girders, joists, angles, channels, car-truck channels, tees, columns and posts, or parts or sections of columns and posts, and deck and bulb beams, together with all other structural shapes of iron or steel: | | | |
| Not assembled, manufactured, or advanced beyond hammering, rolling, or casting ---------- | 1/5¢ lb. | 1/5¢ lb. | BELGIUM |
| Machined, drilled, punched, assembled, fitted, fabricated for use, or otherwide advanced beyond hammering, rolling, or casting *** ---------- | 20% ad val. | 15% ad val. 1/ | do. |

1/ Trade agreement with Belgium, effective May 1935.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). Imports from Germany were dutiable at the preagreement rates. The ad valorem equivalent of the base specific rate of 1/5 cent per pound on all imports in 1939 subject to such base rate only was 13 percent.

STRUCTURAL SHAPES OF IRON OR STEEL,
UNFABRICATED AND FABRICATED-Continued

Comment

Structural shapes of iron or steel are produced by rolling and ordinarily more than three-fourths of the output is fabricated before use. Production is almost entirely of steel, wrought iron shapes constituting only a small fraction of 1 percent of the total. Alloy steel shapes also are being used to a small but increasing extent.

Shapes are classified by weight. Heavy shapes include beams, channels, joists, girders, angles, tees, and zees having at least one dimension of their cross section 3 inches or more. They are used in the construction of bridges, buildings, ships, railroad rolling stock, and for many other constructional purposes. Light structural shapes are used in the manufacture of agricultural implements, automobiles, furniture, fences, safes, vaults, fire escapes, and numerous other articles.

The United States has been the worlds largest producer for many years. Before the war the United Kingdom, France, Germany, Luxemburg, Japan, and Belgium approximately in the order named, ranked next in importance. The Belgium-Luxemburg Economic Union was the leading exporter.

During 1937-39 imports were equal to 1.9 percent of production and were greatly exceeded by exports. The ratio of imports to production was somewhat higher than the similar ratio for finished iron and steel products as a whole, which averaged about 1 percent. In terms of quantity, imports of structural shapes usually exceeded those of any other finished iron or steel product, although in value they were outranked seamless tubes and bars. Total imports of plain and fabricated shapes reached a peak of about 180,000 short tons, valued at 5.1 million dollars, in 1927.

Most of the shapes imported in the prewar period were made of basic Bessemer steel and were inferior to the domestic open-hearth steel product. The cost of rail transportation in the United States has restricted the market for imports to within 50 or 100 miles of the port of entry. Through the expansion and modernization of its facilities during the war, especially of those in coastal areas, the domestic industry strengthened its competitive position.

The following table shows imports by kinds and principal sources in 1939. Imports of fabricated shapes have been small for many years.

Structural shapes: United States imports for consumption by kind with principal sources 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Unfabricated shapes | $1,323,324 | BELGIUM, $1,045,671; France, $254,881; Germany, 1/ $20,985 |
| Fabricated shapes | 7,742 | BELGIUM, $3,910; Germany, 1/ $3,763 |

1/ Includes Austria

Source: Official statistics of the U. S. Department of Commerce.

The rate of duty on unfabricated shapes has long been lower than those on tonnage steel bars and plates which usually sell at the same or only slightly higher prices. This circumstance has led to considerable tariff litigation. For example, light or bar-sized shapes have sometimes been held to be dutiable under paragraph 312 as shapes and sometimes under paragraph 304 as bars at a somewhat higher rate. This administrative difficulty could be avoided if the rates in paragraphs 304, 307, and 312 were brought into line.

## SASHES AND FRAMES OF IRON OR STEEL

Stat. import class (1939): 6081.2

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from— | | |
|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Belgium |
| | Quantity (pounds) | | | | |
| 1937 | Not available | 3,843,244 | 585 | - | 585 |
| 1938 | | 3,168,534 | 575 | 280 | 250 |
| 1939 | | 2,658,102 | 12,836 | 11,636 | 950 |
| 1943 | | 2/ 2,751,502 | - | - | - |
| | Value (dollars) | | | | |
| 1937 | 19,850,930 | 284,205 | 110 | - | 110 |
| 1938 | n.a. | 311,372 | 85 | 22 | 54 |
| 1939 | 17,881,664 | 339,342 | 947 | 791 | 104 |
| 1943 | n.a. | 2/ 254,680 | - | - | - |

1/ Window sash and frames of iron and steel.
2/ Includes 1,793,400 pounds valued at $131,557 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| | Percent ad valorem | | |
| Par. 312 | | | |
| Sashes and frames of iron or steel | 25 | 2/ 15 | UNITED KINGDOM |

1/ In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).
2/ Trade agreement with the United Kingdom, effective January 1939.

### Comment

Sashes and frames of iron or steel range in quality from the low-priced industrial type with riveted joints to the highest priced residential casement type with welded joints and expensive bronze hardware.

In the interwar period imports reached a peak in 1929, when they amounted to 5,294,131 pounds valued at $579,646 (the duty was then the same as under the act of 1930). Since 1931 they have been at very low levels. When "Buy American" policies were instituted during the depression in the United States, British companies, long the leading world producers and exporters of high-priced grades, began to establish plants in the United States or to become affiliated with plants already established.

The domestic product meets its principal competition from wood and other building materials rather than from imports.

# HOOP, BAND, SCROLL, AND STRIP IRON OR STEEL, NOT SPECIALLY PROVIDED FOR

Stat. import classes (1939): 6111.0-6111.7

United States production, exports, and imports, 1937-39 and 1943 1/

| Year | Production 2/ | Domestic exports 3/ | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | France | Germany 4/ | UNITED KINGDOM |
| | Quantity (short tons) | | | | | | |
| 1937 | 3,358,312 | 124,582 | 28,692 | 21,373 | 4,936 | 1,815 | 529 |
| 1938 | 1,228,439 | 70,061 | 18,736 | 13,863 | 3,451 | 1,413 | 1 |
| 1939 | 1,899,667 | 99,627 | 17,949 | 13,953 | 2,504 | 1,064 | 354 |
| 1943 | 2,186,105 | 5/199,510 | 6/ | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not available | 7,979,220 | 896,377 | 646,383 | 135,920 | 65,036 | 32,410 |
| 1938 | | 5,184,314 | 644,974 | 480,109 | 109,918 | 50,132 | 67 |
| 1939 | | 6,552,836 | 594,639 | 437,262 | 75,187 | 37,654 | 29,660 |
| 1943 | | 27,947,315 | 6/16 | - | - | - | - |
| | Unit value (per pound) | | | | | | |
| 1937 | Not available | $0.032 | $0.016 | $0.015 | $0.014 | $0.018 | $0.031 |
| 1938 | | .037 | .017 | .017 | .016 | .018 | .035 |
| 1939 | | .033 | .017 | .016 | .015 | .018 | .042 |
| 1943 | | 5/ .070 | - | - | - | - | - |

1/ Statistics of production, exports, and imports are not strictly comparable.
2/ Includes strip and hoops of iron or steel.
3/ Includes strip, hoop, band, and scroll iron or steel, hot-rolled and cold-rolled, baling bands may be included in 1937.
4/ Includes Austria beginning 1938.
5/ Includes 109,330 short tons, valued at $19,379,815 (unit value, $0.089), exported under lend-lease.
6/ Less than one-half short ton, imported from Switzerland.
Source: Production from American Iron and Steel Institute, Annual Statistical Report; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 313 | | | |
| Hoop, band, and scroll iron or steel, not specially provided for, valued at 3 cents per pound or less, eight inches or less in width: | | | |
| Thinner than 3/8 and not thinner than 109/1,000 inch | 25/100 | 25/100 | BELGIUM |
| Thinner than 109/1,000 and not thinner than 38/1,000 inch | 35/100 | 35/100 | BELGIUM |
| Thinner than 38/1,000 inch | 55/100 | 55/100 | BELGIUM |
| Provided, That barrel hoops of iron or steel, and hoop or band iron, or hoop or band steel, flared, splayed, or punched, with or without buckles or fastenings, shall pay no more duty than that imposed on the hoop or band iron or steel from which they are made *** . | | | |

HOOP, BAND, SCROLL, AND STRIP IRON OR STEEL,
NOT SPECIALLY PROVIDED FOR--Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 313--Continued: | | | |
| Bands and strips of iron or steel, whether in long or short lengths, not specially provided for | 25% ad val. | 25% ad val. | UNITED KINGDOM |

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold hammering, etc., under paragraph 315 (the additional rates in par. 315 are not under consideration in the proposed negotiations). The ad valorem equivalents of the base specific rates on all imports subject to such base rates only were as follows: 0.25 cent per pound, equivalent to 16 percent ad valorem in 1939; 0.35 cent per pound, equivalent to 22 percent in 1939; 0.55 cent per pound, equivalent to 21 percent in 1937. There were no imports in the latter duty bracket in 1938 or 1939.

Comment

All of the products dutiable under paragraph 313 are included in this digest. Hoop, band, and strip iron or steel are often sold in coils. When narrow widths are coiled in the form of a figure 8, they are designated as scroll. Baling bands are classified in paragraph 314 (see separate digest).

The last clause of the paragraph includes "bands and strips of iron or steel, whether in long or short lengths, etc., not specially provided for." It includes bands valued over 3 cents per pound or thicker than 3/8 inch, iron strips, 1/ and steel strips falling outside of the dimensional limitations of paragraph 316 (a). (The latter paragraph covers all steel in strips not thicker than 1/4 inch and not wider than 16 inches.)

The great bulk of United States production, exports, and imports consists of low-priced tonnage grades, which are used in the manufacture of automobiles, barrel hoops, tubes, and other articles of many varieties. Stock for cutting tools requires high-grade tool steel, sometimes alloyed.

According to the American Iron and Steel Institute, 2/ on January 1, 1945, there were 57 companies in the United States equipped to produce hot rolled strip. Their combined annual capacity was about 8.1 million short tons. Various subsidiaries of the United States Steel Corporation accounted for 2.9 million tons, National Steel Corporation for 1.4 million, and Acme Steel Corporation for 0.5 million. The principal producing States are Ohio, Michigan, Indiana, Illinois, and Pennsylvania.

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1/ Practically all strips are made of steel rather than iron.
2/ Directory of Iron and Steel Works of the United States and Canada, 1945, p. 552.

## HOOP, BAND, SCROLL, AND STRIP IRON OR STEEL, NOT SPECIALLY PROVIDED FOR--Continued

The United States has more efficient hot- and cold-rolling mills than any other country, and is the leading producer. Before the war, Belgium-Luxemburg, France, Germany, and the United Kingdom were larger exporters than the United States. Much of the steel from continental Europe, however, was of the basic Bessemer grade, which is generally rated as inferior to that produced here. Because of the high cost of transportation in the United States imports of low-priced grades are consumed in and near New York and other important ports of entry. High-priced grades, such as are supplied by Sweden, can be marketed in the interior as well.

The table below shows imports by kinds and principal sources in 1939.

Hoop, band, scroll, and strip iron and steel, n.s.p.f: United States imports for consumption by kind with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Hoop, band, or scroll iron or steel, n.s.p.f. and barrel hoops, 8 inches or less in width | | |
| Valued at 3¢ lb. or less | | |
| 3/8 - 109/1000 inch thick | $476,240 | BELGIUM, $379,322; France, $74,765; Germany, 1/ $22,153 |
| 109/1000 - 38/1000 inch thick | 65,523 | BELGIUM, $55,293; Germany, 1/ $9,278 |
| Bands or strips of iron or steel, n.s.p.f. | | |
| Not containing dutiable alloy | 46,050 | UNITED KINGDOM, $29,660; Germany, 1/ $6,223; Sweden, $5,285 |
| Containing dutiable alloy | 3,961 | Sweden, $3,961 |
| Galvanized or coated with any metal | | |
| Not containing dutiable alloy | 1,648 | Sweden, $1,648 |
| Containing dutiable alloy | 1,217 | Sweden, $1,217 |

1/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce.

# BALING HOOP OR BAND IRON OR STEEL

Stat. import classes (1939): 6110.5 and 6110.9

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption 2/ from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Germany 3/ | France |
| | Quantity (short tons) | | | | | |
| 1937 ---- | 70,017 | n.a. | 1,804 | 1,177 | 486 | 117 |
| 1938 ---- | 38,127 | n.a. | 10,531 | 4,459 | 3,867 | 2,205 |
| 1939 ---- | 34,580 | n.a. | 8,562 | 4,806 | 2,829 | 894 |
| 1943 ---- | 46,212 | 4515 | 4/ 2 | - | - | - |
| | Value (dollars) | | | | | |
| 1937 ---- | 3,329,293 | n.a. | 76,727 | 51,892 | 19,519 | 4,294 |
| 1938 ---- | n.a. | n.a. | 406,246 | 150,420 | 168,062 | 87,764 |
| 1939 ---- | 1,733,473 | n.a. | 313,782 | 186,172 | 92,423 | 33,787 |
| 1943 ---- | n.a. | 47,080 | 4/ 82 | - | - | - |

1/ Quantity figures (from American Iron and Steel Institute, Annual Statistical Report), include cotton ties and baling bands--value figures (from Census( refer to cotton ties made for sale which account for practically the entire output.

2/ In the years shown, there were no imports on which additional duties were imposed for advanced processing (par. 309).

3/ Includes Austria beginning 1938.

4/ Free for Government use, from Canada.

Source: Official statistics of the U. S. Department of Commerce, except as noted.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | (Per pound) | | |
| Par. 314: | | | |
| Hoop or band iron, and hoop or band steel, cut to lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity | 1/4¢ | 1/ 1/5¢ | BELGIUM |

1/ Trade agreement with Belgium, effective May 1935.

Note.- In addition to the base rate shown above, imports are subject to additional duties for galvanizing, etc., under paragraph 309 (see separate digest). Imports from Germany were dutiable at the pre-agreement rates. The ad valorem equivalent of the base specific rate (0.2 cent per pound) on all imports in 1939 subject to such base rate only, except imports from Germany, was 10 percent.

BALING HOOP OR BAND IRON OR STEEL-Continued

Comment

All of the products classified in paragraph 314 are included within the scope of this digest. These products are essentially baling bands of iron or steel (almost entirely steel), an important variety being commonly known as cotton ties.

Cotton ties are strips of steel 15/16 inch wide, about 0.0385 inch thick, and 11½ feet long, used for tying bales of cotton. Each strip is provided with a buckle for fastening the tie. The buckle is a piece of flat steel in which there is a longitudinal slot with a wide opening for the insertion of the tie strip. There are 30 ties to the bundle. Each tie weighs about 1½ pounds, and 6 ties are used to each standard bale of cotton. Baling bands other than cotton ties are used for baling paper, shingles, moss, excelsior, and many other products. There are in the United States four establishments producing cotton ties, the most important type of baling bands. In recent prewar years, Alabama accounted for the great bulk of the output of cotton ties and Georgia for the remainder. A subsidiary company of the U. S. Steel Corp. in Alabama had an annual capacity for producing cotton tie strip of 62,000 tons as of January 1, 1945. This company is capable of supplying practically all United States requirements under normal conditions.

Imports by kinds and principal sources in 1939 are shown below. Cotton ties have constituted the great bulk of imports of baling hoop or band iron or steel for many years.

Baling hoop or band iron or steel: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Cotton ties | $291,179 | BELGIUM, $170,375; Germany, 1/ $86,867; France, $33,787. |
| Other | 22,603 | BELGIUM, $15,797; Germany 1/ $5,556. |

1/ Includes Austria

Source: Official statistics of the U. S. Department of Commerce.

For the 3-year period 1937-39 the ratio of imports to production amounted to 15.5 percent (quantity basis). This small sector of the iron and steel industry encounters much more competition from imports than does the industry as a whole, for which the corresponding ratio was about 1 percent. The present duty (about 10 percent) is lower than the average for the entire group of iron and steel products (about 20 percent).

WIRE RODS OF IRON OR STEEL, VALUED AT NOT OVER 4 CENTS PER POUND

Stat. import classes (1939): 6036.0-.1 and 6036.4-.5

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 1/ | Imports for consumption 2/ from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Sweden | BELGIUM | Germany 3/ | France |
| | Quantity (short tons) | | | | | | |
| 1937- | 3,370,405 | 67,209 | 14,338 | 12,119 | 1,913 | 559 | 16 |
| 1938- | 2,361,630 | 24,937 | 4,617 | 2,645 | 1,149 | 789 | - |
| 1939- | 3,680,297 | 35,444 | 8,039 | 6,917 | 784 | 334 | 91 |
| 1943- | 4,693,798 | 4/176,040 | 5/ 19 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937- | Not available | 3,262,955 | 947,236 | 786,339 | 98,631 | 11,377 | 385 |
| 1938- | | 1,111,595 | 250,050 | 190,112 | 31,644 | 20,956 | - |
| 1939- | | 1,330,141 | 332,453 | 262,268 | 18,748 | 4,306 | 2,023 |
| 1943- | | 4/8,223,812 | 5/ 1,522 | - | - | - | - |

1/ Data for production and exports are slightly more inclusive than those for imports because they include all wire rods regardless of value; low-priced grades, however, probably represent more than 90 percent of total production and exports.
2/ In the years shown, imports of rods subject to additional duties for alloy content, galvanizing, cold rolling, etc., were very small. There were no imports of tempered or treated rods.
3/ Includes Austria beginning 1938.
4/ Includes 160,330 short tons valued at $8,196,653 exported under lend-lease.
5/ Imported from Canada.
Source: Production from American Iron and Steel Institute, Annual Statistical Report; exports and imports from official statistics of the U.S. Department of Commerce

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 315 | | | |
| Wire rods: Rivet, screw, fence and other iron or steel wire rods, whether round, oval, or square, or in any other shape, nail rods and flat rods up to 6 inches in ½ width ready to be drawn or rolled into wire or strips, all the foregoing in coils or otherwise: | | | |
| Valued at not over 2½ cents per pound 1/---- | 3/10 | 2/ 1/4 | BELGIUM |
| Valued over 2½ and not over 4 cents per pound 1/---- | 3/10 | 3/ 3/10 | do. |
| Any of the foregoing which have been tempered or treated in any manner or partly manufactured---- | 1/4 additional | 1/4 additional | do. |

1/ These two tariff brackets are reclassifications resulting from the trade agreement with Belgium.
2/ Trade agreement with Belgium, effective May 1935.
3/ Rate bound in trade agreement with Sweden, effective August 1935.
Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), for galvanizing, etc., under paragraph 309 (see separate digest), and for cold rolling, etc., under paragraph 315 (except as indicated above, the additional rates in paragraph 315 are not under consideration in the proposed negotiations). Prewar imports from Germany were dutiable at the pre-agreement rates. The ad valorem equivalents of the base specific rates on all imports in 1939 subject to such base rates only, except imports from Germany, were as follows: 0.25 cent per pound, equivalent to 21 percent ad valorem; 0.3 cent per pound, equivalent to 8 percent.

WIRE RODS OF IRON OR STEEL, VALUED AT NOT OVER 4 CENTS PER POUND-Continued

Comment

Wire rods are made from billets by hot rolling and are ordinarily round, oval, square, oblong or flat in cross section. After rolling, the rods are generally reeled in coils. Wire rods are used chiefly for making wire, but are also used for making rivets, screws, bolts and many other products. The great bulk of the rods are made of low-priced steel, but considerable quantities are made of high-priced steel for manufacture into rope wire and other specialties.

In 1939 wire rods amounted to about 9 percent of the total tonnage of hot-rolled products produced in the United States, ranking third after sheets and bars. Census reports indicate that only about one-fifth of the tonnage is produced for sale as such. They also indicate that domestic rods had an average value of about 2 cents per pound in 1939 (see table below). In the same year imported rods in the low-value category had an average foreign value of 1.2 cents per pound.

Wire rods: United States production, 1939

| Item | Quantity (short tons) | Value | Unit value (per pound) |
|---|---|---|---|
| Made for sale | 768,100 | $30,635,317 | $0.020 |
| Produced and consumed in same works | 2,460,873 | n.a. | n.a. |
| Interplant transfers | 374,425 | 15,562,466 | .021 |
| Total | 3,603,398 | n.a. | n.a. |

Source: Census of Manufactures, 1939, Vol. II, Part 2, p. 188.

On January 1, 1945 the United States had an annual wire rod capacity of 7,338,340 tons. The United States Steel Corporation accounted for 2,738,300 tons, Bethlehem Steel Corporation for 725,000 tons, and Republic Steel Corporation for 500,000 tons. 1/ These three leading producers together accounted for 54 percent of total United States capacity. Pennsylvania, Illinois, Ohio, Alabama, and Maryland are the principal producing States.

The United States has more efficient producing facilities than any other country. Before the war this country normally produced two or three times as much (by weight) as Germany, which ranked second; the United Kingdom, France, Belgium, and Japan were next in importance in wire rod production. Although smaller producers, Germany, the United Kingdom, and Belgium before the war surpassed the United States as exporters.

United States imports have been equivalent to only a small fraction of 1 percent of production for many years, and this branch of the steel industry has long been on a strong export basis.

The following table shows imports by kinds and principal sources in 1939.

1/ Directory of Iron and Steel Works of the United States and Canada, American Iron and Steel Institute, 1945, p. 543.

WIRE RODS OF IRON OR STEEL, VALUED AT NOT OVER 4 CENTS PER POUND-Continued

Wire rods of iron or steel: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Valued at not over 2½¢ lb.: | | |
| Not containing dutiable alloy | $28,926 | BELGIUM, $18,297; Germany, 1/ $8,606 France $2,023. |
| Galvanized or coated with any metal | 451 | BELGIUM, $451. |
| Valued over 2½¢ and not over 4¢ lb.: | | |
| Not containing dutiable alloy | 501,601 | Sweden, $501,493. |
| Containing dutiable alloy | 1,475 | Sweden, 1,475. |

1/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce

The large vertically integrated concerns which account for most of the domestic output make their own steel and process it into wire rods and advanced wire products. Rising foreign export prices may result in Belgium becoming an important source of imports in the 2½-4 cents pound value bracket.

# ROUND IRON OR STEEL WIRE, VALUED AT NOT ABOVE 6 CENTS PER POUND

Stat. import classes (1939): 6094.0-.2 and 6094.5-.7

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Germany 4/ | Sweden |
| | Quantity (short tons) | | | | | |
| 1937 | 2,607,030 | 62,831 | 1,584 | 431 | 7 | 1,085 |
| 1938 | 1,960,954 | 55,857 | 259 | 169 | 76 | 6 |
| 1939 | 2,924,293 | 67,754 | 202 | 169 | 30 | 2 |
| 1943 | 3,718,356 | 5/ 162,793 | 6/ 7 | - | - | - |
| | Value (dollars) | | | | | |
| 1937 | Not | 4,811,956 | 174,372 | 43,007 | 326 | 127,811 |
| 1938 | avail- | 3,776,599 | 24,839 | 18,620 | 4,952 | 599 |
| 1939 | able | 4,515,253 | 20,394 | 16,982 | 3,178 | 155 |
| 1943 | (see text) | 5/ 21,418,214 | 6/ 600 | - | - | - |
| | Unit value (per pound) | | | | | |
| 1937 | Not | $0.038 | $0.055 | $0.050 | $0.024 | $0.059 |
| 1938 | avail- | .034 | .048 | .055 | .033 | .052 |
| 1939 | able | .033 | .050 | .050 | .052 | .039 |
| 1943 | | .066 | 6/ .042 | - | - | - |

1/ Includes drawn wire of all grades, regardless of value. The great bulk of the domestic output is of low-priced grades.

2/ Includes iron or steel wire (uncoated), and galvanized wire.

3/ Only a very small part of total imports consisted of grades on which rates additional to the base rate were imposed. In the years shown, there were no imports of grades containing dutiable alloy and imports of galvanized and other metal-coated grades were negligible.

4/ Includes Austria beginning 1938.

5/ Includes 110,029 short tons valued at $15,775,195 exported under lend-lease.

6/ Imported from Canada.

Source: Production from Annual Statistical Report, American Iron and Steel Institute; exports and imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 316(a) | | | |
| Round iron or steel wire, valued at not above 6 cents per pound: | | | |
| Not smaller than 95/1000 inch in diameter | 3/4 | 3/4 | UNITED KINGDOM |
| Smaller than 95/1000 and not smaller than 65/1000 inch in diameter | 1-1/4 | 1-1/4 | do. |
| Smaller than 65/1000 inch in diameter | 1-1/2 | 1-1/2 | do. |

ROUND IRON OR STEEL WIRE, VALUED AT NOT ABOVE 6 CENTS PER POUND--Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 316(a) | | | |
| Round iron or steel wire, valued at not above 6 cents per pound:--Cont'd. | | | |
| Any of the foregoing, coated by dipping, galvanizing, sheradizing, electrolytic, or any other process with zinc, tin, or other metal ----- | 2/10 additional | 2/10 additional | UNITED KINGDOM |

Note.- In addition to the three base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest), and for dipping, galvanizing, etc., under paragraph 316(a). The ad valorem equivalents of the base specific rates on all imports in 1939 subject to such base rates only were as follows: 3/4¢ per pound, equivalent to 16 percent ad valorem; 1-1/4 ¢ per pound, equivalent to 24 percent; and 1-1/2¢ per pound, equivalent to 30 percent.

## Comment

Round iron or steel wire is usually cold drawn from hot-rolled wire rods. Steel wire accounts for all but a small fraction of 1 percent of the total output of iron and steel wire. Most of the ferrous wire produced is made of soft non-alloy steel (0.30 percent carbon or less), and is used for making fencing, wire nails, and many other wire products. Wire of higher carbon content, or with alloy content, or wire which is cold worked to a high degree, is stronger than soft wire and is used for making wire rope, springs, needles, and other specialties. When increased resistance to corrosion is desired, the wire is often coated with zinc or other metal or metal alloys. Fencing wire is often galvanized, and if so treated it is dutiable under the provisions of paragraph 317 (see separate digest).

Only about 32 percent (by weight) of the total output of plain (uncoated) iron or steel wire was made for sale as such in 1937, and 28 percent in 1939 (see following table).

Iron and steel plain wire: United States production, 1937 and 1939 1/

| Item | 1937 | | | 1939 | | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Unit value | Quantity | Value | Unit value |
| | Short tons | | Per lb. | Short tons | | Per lb. |
| Made for sale | 920,663 | $75,957,334 | $0.041 | 890,033 | $68,671,086 | $0.039 |
| Interplant transfer | 117,279 | 9,996,235 | .043 | 158,605 | 11,388,880 | .036 |
| Produced and consumed in same works | 1,874,723 | n.a. | n.a. | 2,121,890 | n.a. | n.a. |
| Total | 2,912,665 | n.a. | n.a. | 3,170,528 | n.a. | n.a. |

1/ These data indicate production to be somewhat larger than that reported by the American Iron and Steel Institute as shown in the first table of this digest.

Source: Census of Manufactures, 1939, Vol. II, Part 2, p. 214.

ROUND IRON OR STEEL WIRE, VALUED AT NOT ABOVE 6 CENTS PER POUND-Continued

On January 1, 1945 the United States had an annual plain wire capacity of 5,863,610 short tons. The United States Steel Corporation accounted for 2,270,700 tons, Bethlehem Steel Corporation for 424,000 tons, and Republic Steel Corporation for 348,000 tons. 1/ These three leading producers together accounted for 52 percent of total United States capacity. Illinois, Pennsylvania, Ohio, Alabama, Massachusetts, and Maryland are the principal producing States.

The United States has more efficient producing facilities than any other country, and is the leading producer. However, in prewar years Belgium, Germany, France, and the United Kingdom were larger exporters than the United States.

Round iron or steel wire: United States imports for consumption, by kinds, and principal sources, 1939

| Kind 1/ | Total value | Principal sources |
|---|---|---|
| Plain: | | |
| Not smaller than 95/1000 inch in diameter | $9,724 | UNITED KINGDOM, $9,615; Germany 2/ $45; Canada, $42. |
| Smaller than 95/1000 and not smaller than 65/1000 inch in diameter | 8,969 | UNITED KINGDOM, $6,649; Germany 2/ $2,320. |
| Smaller than 65/1000 inch in diameter | 1,680 | Germany, $807; UNITED KINGDOM, $718; Sweden, $155. |
| Coated with metal: | | |
| Not smaller than 95/1000 inch in diameter | 15 | Norway, $15. |
| Smaller than 95/1000 and not smaller than 65/1000 inch in diameter | - | - |
| Smaller than 65/1000 inch in diameter | 6 | Germany 2/ $6. |

1/ There were no imports containing dutiable alloy. 2/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce.

Before the war United States imports of wire valued at not over 6 cents per pound accounted for only an insignificant part of consumption and were greatly exceeded by exports. Imports of wire valued over 6 cents a pound, not considered in this digest, amounted in value to nearly $440,000 in 1939, and thus were greatly in excess of imports of the cheaper wire.

1/ Directory of Iron and Steel Works of the United States and Canada, American Iron and Steel Institute, 1945, p. 545.

Stat. import classes (1939): 6098.0, 6098.1

United States production, exports, and imports, 1937-39 and 1943

| | Production 1/ | Domestic exports 2/ | Imports for consumption 3/ from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Germany 4/ | UNITED KINGDOM | Japan | BELGIUM |
| | Quantity (short tons) | | | | | | |
| 1937 | 156,043 | 8,763 | 3,974 | 1,810 | 507 | 874 | 249 |
| 1938 | n.a. | 4,897 | 2,263 | 1,207 | 424 | 172 | 153 |
| 1939 | 156,150 | 6,785 | 1,863 | 596 | 310 | 354 | 142 |
| 1943 | n.a. | 5/ 38,921 | 6/ 349 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | 40,806,455 | 1,841,341 | 549,393 | 239,044 | 107,168 | 100,722 | 23,957 |
| 1938 | n.a. | 1,181,125 | 376,406 | 184,408 | 97,462 | 23,081 | 15,022 |
| 1939 | 41,799,426 | 1,514,691 | 291,361 | 92,474 | 62,974 | 44,607 | 14,237 |
| 1943 | n.a. | 5/16,952,333 | 6/147,353 | - | - | - | - |
| | Unit value (per pound) | | | | | | |
| 1937 | $0.131 | $0.105 | $0.069 | $0.066 | $0.106 | $0.058 | $0.048 |
| 1938 | n.a. | .121 | .083 | .076 | .115 | .067 | .049 |
| 1939 | .134 | .112 | .078 | .078 | .102 | .063 | .050 |
| 1943 | n.a. | 5/ .218 | .211 | - | - | - | - |

1/ Includes iron and steel strand, galvanized, and rope and cable, except insulated. 2/ Includes wire strand and wire rope and cable, not insulated.

3/ In the years shown, there were no imports dutiable at rates additional to the base rates by reason of alloy content. 4/ Includes Austria beginning 1938.

5/ Includes 30,879 short tons valued at $14,240,190 (unit value $0.230) exported under lend-lease.

6/ Free for Government use 136 short tons valued at $59,061 imported from Canada.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 316(a) | | | |
| Wire rope | 35% ad val. | 2½¢ lb., but not less than 17½ nor more than 35% ad val. 1/ | UNITED KINGDOM |
| Wire strand | 35% ad val. | 35% ad val. | BELGIUM |

1/ Trade agreement with the United Kingdom, effective January 1939.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). Imports of wire rope from Germany were dutiable at the preagreement rates. The ad valorem equivalent of the alternative specific and ad valorem base rates on all imports in 1939 subject to such rates only, except imports from Germany, was 29 percent; the specific base rate of 2½ cents per pound, applicable to about 60 percent (by value) of the total imports in 1939 from countries other than Germany, was equivalent on all such imports in 1939 to 27 percent ad valorem. Slightly over 50 percent of the total imports in 1939 (including imports from Germany) were dutiable at the maximum rate of 35 percent ad valorem.

WIRE ROPE AND STRAND-Continued

Comment

Wire rope consists of a number of twisted wire strands having a core of hemp, wire strand, or other material. Each strand is made of twisted wires, usually of steel but sometimes of phosphor bronze, monel metal, or other materials. Wire rope is made in many different grades, and is used chiefly in oil drilling, in operating elevators, in logging, and in aerial tramway operations. Wire strand is sometimes used separately rather than as a component of wire rope. When so used, it is usually galvanized for resistance to corrosion, and is employed chiefly for supporting poles and for other guying purposes and for highway guard fences.

Wire rope and strand: United States production in 1937 and 1939.

| Item | 1937 | | | 1939 | | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Unit Value | Quantity | Value | Unit Value |
| | Short tons | | Per Pound | Short tons | | Per Pound |
| Rope and cable, except insulated | 118,722 | $36,403,090 | $0.153 | 110,304 | $35,761,953 | $0.162 |
| Wire strand | 37,321 | 4,403,365 | .059 | 45,846 | 6,037,473 | .066 |
| Total | 156,043 | 40,806,455 | | 156,150 | 41,799,426 | |

Source: Census of Manufactures, 1939.

Information supplied by the Wire Rope and Strand Manufacturers Association, Washington, D. C., indicates that by the end of the war, production of wire rope and strand had attained a rate three or four times as large as the prewar maximum. Demand during the war increased rapidly because of the use of wire rope, cable, and strand in airplanes, ships, and other war and essential civilian uses. While some new producing facilities were installed, especially for small sizes, most of the increased output was achieved by a fuller utilization of available capacity. The largest producers have their own steel-making facilities, but a considerable part of the output is manufactured by concerns which purchase their steel, in the form of either wire rods or wire.

The United States is the leading producer, but the United Kingdom and Germany each had a larger export trade before the war. In the immediate prewar years Germany, Japan, and the United Kingdom were the principal sources of United States imports. German and Japanese rope was inferior to that of British and American manufacture, and was sold at lower prices. Imports constituted only a small proportion of United States consumption, and to some extent they consisted of sizes and grades not produced in volume in the United States. Partly because of this fact and partly also because of the inferior quality of products imported chiefly from Germany and Japan, competition between imports and domestic production was slight. However, in contrast to many low-priced iron and steel products which were marketed almost entirely in seaboard areas, imported wire rope and strand were widely distributed and sold in some of the principal inland markets, since their higher unit values made their transportation to those markets economical.

Before the war, the Philippine Islands and Mexico were the principal markets for United States exports. Canada, Panama, Cuba, and other Western Hemisphere countries were also important outlets.

The reduction in duties on wire rope in the trade agreement with the United Kingdom, although arranged in such a way as to favor imports from that country as compared with imports from Germany (to which the reduced rates did not apply) and Japan, resulted in no increase in imports from the United Kingdom in 1939, as might be expected because of the disturbed economic and political conditions.

WIRE ROPE AND STRAND-Continued

Wire rope and strand: United States imports for consumption, by kinds, with rates of duty, and principal sources, 1939 1/

| Kind and rate of duty | Total value | Principal sources |
|---|---|---|
| Wire rope: | | |
| Not containing dutiable alloy 2/: | | |
| 2½¢ lb. (agreement rate) | $113,742 | UNITED KINGDOM, $52,452; Sweden, $34,643; Norway, $14,537 |
| 17½¢ percent (agreement rate) | 12,311 | UNITED KINGDOM, $7,239; Sweden, $1,790; Canada, $1,321. |
| 35 percent (preagreement and agreement rates) | 146,669 | Germany 3/ $90,652; Japan, $35,216; Sweden, $12,024. |
| Wire strand: | | |
| Not containing dutiable alloy 2/ | 18,639 | BELGIUM, $9,845; Poland and Danzig, $4,658; Germany, 3/ $1,822. |

1/ In 1939, 83 percnet of the imports (by value) from the United Kingdom paid the 2½ cent rate; the average rate on imports from Germany worked out at 2.77 cents per pound, and on imports from Japan subject to the maximum rate, at 2.08 cents.

2/ There were no imports containing dutiable alloy in 1939.

3/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

BALING WIRE

Par. No. 317
BELGIUM

Stat. import class (1939): 6094.9

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption 2/ from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Germany 3/ | Japan |
| | Quantity (short tons) | | | | | |
| 1937 | 80,385 | Not | 284 | 154 | 89 | 25 |
| 1938 | n.a. | avail- | 170 | 50 | 120 | - |
| 1939 | 84,783 | able 4/ | 226 | 178 | 48 | - |
| 1943 | n.a. | | 5/ 1 | - | - | - |
| | Value (dollars) | | | | | |
| 1937 | 5,899,532 | Not | 13,342 | 6,925 | 4,754 | 977 |
| 1938 | n.a. | avail- | 10,170 | 2,233 | 7,937 | - |
| 1939 | 5,914,723 | able 4/ | 13,231 | 9,618 | 3,613 | - |
| 1943 | n.a. | | 5/ 118 | - | - | - |

1/ Bale ties (roughly equivalent to the production of baling wire, which is not available).
2/ There were no imports of baling wire containing dutiable alloy in the years shown.
3/ Includes Austria beginning 1938.
4/ Exports probably exceed imports.
5/ Free for Government use, imported from Canada.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 317: | | | |
| All wire commonly used for baling hay or other commodities | 1/2 | 1/2 | BELGIUM |

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content (see separate digest). The ad valorem equivalent of the 1/2 cent per pound rate on all imports in 1939 was 17 percent. (No imports containing dutiable alloy.)

Comment

Baling wire is generally round, varying in diameter from about 1/16 to 1/8 inch. It is used in the manufacture of bale ties, which are made with a loop on one end, or sometimes on both ends, and cut to specified lengths. It is usually made of ordinary low-priced carbon steel with the strength and ductility necessary for baling hay, straw, flax, paper, rags, and other commodities.

The large integrated steel producers account for most of the domestic output, but a considerable part is accounted for by relatively small companies, some of which draw purchased wire rods into baling wire. As of January 1, 1945, United States annual bale-tie capacity (roughly equivalent to baling wire capacity, which is not available) amounted to 139,840 short tons. The three leading producers of bale ties, all of which produce baling wire, are the Northwestern Steel & Wire Co., Sterling, Ill. (32,400 tons), U. S. Steel Corp. (31,790 tons), and Colorado Fuel & Iron Corp. (14,400 tons); these concerns together accounted for 56 percent of total domestic capacity. Illinois, Alabama, Colorado, and Iowa are the principal producing States.

# GALVANIZED FENCING WIRE AND GALVANIZED WIRE FENCING

Stat. import classes (1939): 610.51, 610.52

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 1/ | Imports for consumption 2/ from-- | | |
|---|---|---|---|---|---|
| | | | All countries | BELGIUM | Germany 3/ |
| | Quantity (short tons) | | | | |
| 1937 | 284,489 | 3,540 | 3,640 | 2,110 | 1,528 |
| 1938 | n.a. | 2,480 | 1,634 | 1,128 | 504 |
| 1939 | 318,963 | 3,774 | 1,651 | 1,192 | 458 |
| 1943 | n.a. | 4/ 3,353 | 5/ 4 | - | - |
| | Value (dollars) | | | | |
| 1937 | 23,329,739 | 390,328 | 161,834 | 98,449 | 63,285 |
| 1938 | n.a. | 249,698 | 96,865 | 63,554 | 33,261 |
| 1939 | 25,356,162 | 361,326 | 89,382 | 61,848 | 27,466 |
| 1943 | n.a. | 4/ 525,519 | 5/ 386 | - | - |

1/ Includes woven wire fencing but excludes fencing wire, for which data are not available.
2/ There were no imports containing dutiable alloy during the years shown.
3/ Includes Austria beginning 1938.
4/ Includes 2,254 short tons, valued at $361,017, exported under lend-lease.
5/ Imported from Canada.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 317 | | | |
| All galvanized wire not specially provided for, not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter, of the kind commonly used for fencing purposes, and galvanized wire fencing composed of wires not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter | 1/2 | 1/2 | BELGIUM |

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). The ad valorem equivalent of the base specific rate (1/2 cent per pound) on all imports in 1939 subject to such base rate only, was 18 percent.

## Comment

Galvanized fencing wire and galvanized wire fencing composed of wires not larger than 20/100 inch in diameter and not smaller than 8/100 inch are dutiable under paragraph 317. Poultry netting, made of wires of smaller diameter, is dutiable under paragraph 397, and barbed wire, whether plain or galvanized, is free of duty under paragraph 1800 (see separate digests).

GALVANIZED FENCING WIRE AND GALVANIZED WIRE GENCING--Continued

Galvanized (zinc coated) wire is made of steel often alloyed with small amounts of copper to increase resistance to atmospheric corrosion. It is frequently used in single strands for fencing, but more commonly for making woven wire fencing.

There are many types of galvanized wire fencing, and each is made in many different sizes depending upon use. For example, fencing for horses and cattle requires heavier wire than is ordinarily used to enclose lawns or parks. Most of it is used in agriculture, but large tonnages are also required in industry.

The United States is the leading producer of fence wire and wire fencing; Germany and Belgium were in the past the principal foreign producers and exporters. On January 1, 1945, the United States had an annual capacity of 1,101,600 short tons. 1/ The three leading producers, with 66 percent of the country's total capacity, were the U. S. Steel Corp. (380,400 tons), Keystone Steel & Wire Co., Peoria, Ill. (220,000 tons), and Northwestern Steel & Wire Co., Sterling, Ill. (126,000 tons). These three companies make their own steel, roll it, and draw it into wire.

Most of the country's woven fence is produced in Illinois, Pennsylvania, Alabama, and Indiana, and most of the plants are located in the interior, where imports cannot compete chiefly because of rail transportation costs in the United States. Total imports before the war were less than 1 percent of United States production.

Galvanized fencing wire and galvanized wire fencing: United States imports by kinds, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Galvanized fencing wire | $23,734 | BELGIUM, $16,714; Germany, 1/ $6,952 |
| Galvanized wire fencing | 65,648 | BELGIUM, $45,134; Germany, 1/ $20,514 |

1/ Includes Austria.
Source: Official statistics of the U. S. Department of Commerce.

1/ Iron and Steel Works Directory of the United States and Canada, American Iron and Steel Institute, 1945, p. 547.

# FORGINGS OF IRON AND STEEL, NOT ADVANCED, N.S.P.F.

Stat. import class (1939): 6113.9

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries 1/ | Sweden | CANADA | Germany 2/ | United Kingdom |
| | Quantity (short tons) | | | | | | |
| 1937 | Not | 11,333 | 1,557 | 1,526 | 4 | 6 | 9 |
| 1938 | avail- | 10,183 | 1,386 | 1,365 | 9 | 3 | 2 |
| 1939 | able | 18,595 | 57 | 30 | 17 | 3 | 4 |
| 1943 | Se 3/ | 4/ 70,017 | 5/ 917 | - | 912 | - | 5 |
| | Value (dollars) | | | | | | |
| 1937 | 3/122,835,000 | 1,279,000 | 220,738 | 211,263 | 1,144 | 3,969 | 2,457 |
| 1938 | n.a. | 1,124,000 | 214,365 | 208,349 | 3,003 | 1,433 | 944 |
| 1939 | 3/104,883,000 | 2,963,000 | 20,590 | 11,986 | 6,594 | 819 | 692 |
| 1943 | n.a. | 4/28,199,000 | 5/635,844 | - | 634,869 | - | 950 |

1/ Imports containing dutiable alloy included in these totals were: 1937, 1,534 tons valued at $213,513; 1938, 1,365 tons valued at $208,836; 1939, 27 tons valued at $10,862; 1943, less than 500 pounds valued at $182. The bulk of the imports containing dutiable alloy were dutiable at 29 percent ad valorem and the rest at 33 percent ad valorem.

2/ Includes Austria beginning 1938.

3/ Includes only establishments primarily engaged in the production of commercial forgings; excludes plants operated in connection with rolling mills. The latter plants, principally making heavy forgings, produced 539,455 tons of axles and other forgings in 1937; 283,568 tons in 1938; 446,821 tons in 1939; 1,768,747 tons in 1943; and 2,076,298 tons in 1944. The figures given of production in this note and in the table include forgings which are specifically dutiable under other paragraphs, and are not therefore strictly comparable with the figures on imports and exports.

4/ Includes 46,806 tons valued at $22,011,000 exported under lend-lease.

5/ Free for Government use 815 tons valued at $600,438.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 (Percent ad valorem) | United States tariff: 1945 rate (Percent ad valorem) | Proposed negotiating country |
|---|---|---|---|
| Par. 319(a) Forgings of iron or steel, or of combined iron and steel, not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, n.s.p.f. | 25 | 25 | CANADA |

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

FORGINGS OF IRON AND STEEL, NOT ADVANCED, N.S.P.F.-Continued

Comment

Iron and steel forgings are made by hammering or pressing the metal to the desired shape while hot. Steel forgings account for the bulk of the domestic production. The increasing use of alloy steel in the manufacture of forgings was accelerated during the war. The great bulk of iron and steel forgings is used by the automotive, railroad, and machinery industries. The agricultural implement, airplane, and many other industries are also large users.

Domestic production of iron and steel forgings was greatly expanded during the war. Most of them are made by concerns which purchase their requirements of steel, but some--especially of the heavy type--are made by the steel producers. Although definite statistical information is not available, it is known that a considerable part of the output is accounted for by automotive and other concerns, which manufacture forgings for their own use.

Imports, consisting mainly of forgings of the light type, have always been much smaller than exports, and have represented only a negligible fraction of the total domestic consumption. The efficiency of the domestic industry and its location near the largest domestic markets, as well as the high cost of transportation from the seaboard to the important inland markets, have in the past restricted, and will continue to restrict imports.

Before the war United States exports of iron and steel forgings were widely distributed over the world. In 1939 Japan was both by value and tonnage the largest export market. When tonnage is used as a criterion, Canada was the second largest market, but if value is used, France and the Philippine Islands were more important export markets for the United States industry. The industry also sold its products in the United Kingdom, Cuba, and several Latin American countries.

Forgings of iron and steel, n.s.p.f.: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Not containing dutiable alloy | $9,728 | CANADA, $6,594; Sweden, $1,300; United Kingdom, $692; Germany,[1] $643 |
| Containing dutiable alloy | 10,862 | Sweden, $10,686; Germany,[1] $176 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# RAILS AND ACCESSORIES

Stat. import classes (1939): 6090.1-5

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption 2/ from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Belgium | France | Germany 3/ |
| | Quantity (short tons) | | | | | | |
| 1937 | 2,112,605 | 185,158 | 9,294 | 3,104 | 2,061 | - | 4,129 |
| 1938 | 897,266 | 102,713 | 4,059 | 351 | 1,942 | 888 | 832 |
| 1939 | 1,789,489 | 78,305 | 8,719 | 7,016 | 899 | 494 | 309 |
| 1943 | 2,782,952 | 4/ 390,164 | 5/ 7,384 | 6,842 | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | 78,821,117 | 6,597,961 | 239,748 | 75,742 | 55,500 | - | 108,506 |
| 1938 | n.a. | 3,881,329 | 112,955 | 12,909 | 51,750 | 21,321 | 24,290 |
| 1939 | 73,320,992 | 3,359,977 | 205,614 | 165,315 | 20,739 | 11,524 | 8,036 |
| 1943 | n.a. | 4/ 19,509,896 | 5/ 168,605 | 162,458 | - | - | - |

1/ Tonnage figures are from the American Iron and Steel Institute, Annual Statistical Report, and represent total production of rails and rail joints and fastenings; value figures are from the U. S. Census of Manufactures and include rails, rail joints, and fastenings, tie plates, etc., made for sale and interplant transfer, which represent nearly all of the output.

2/ There were no imports of rails and accessories containing dutiable alloy in 1938 and 1939, and only 1 ton in 1937.

3/ Includes Austria beginning 1938.

4/ Includes 284,110 short tons valued at $13,741,747 exported under lend-lease.

5/ Free under Public Law 497, 77th Congress, 5,636 short tons valued at $111,488; principally from Canada.

Source: Official statistics of the U. S. Department of Commerce (except as noted).

| Item | United States tariff: Act of 1930 (Cents per pound) | United States tariff: 1945 rate (Cents per pound) | Proposed negotiating country |
|---|---|---|---|
| Par. 322: | | | |
| Railway fishplates or splice bars, and tie plates, made of iron and steel | 1/4 | 1/4 | CANADA |
| Rail braces and all other railway bars made of iron or steel, and railway bars made in part of steel, T-rails, and punched iron or steel flat rails | 1/10 | 1/10 1/ | CANADA |

1/ Relaying and rerolling rails were made duty-free for the duration of the emergency by Pubic Law 497, 77th Congress (T.D. 50585), effective March 1942.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). The ad valorem equivalents of the specific rates on imports in 1939 subject to the base duties only were as follows: 1/4¢ per pound equivalent to 15 percent ad valorem, and 1/10¢ per pound equivalent to 9 percent.

RAILS AND ACCESSORIES--Continued

Comment

Steel rails are by far the most important of the railway materials classified under paragraph 322. All rails produced in the United States today are made of steel, the manufacture of iron rails having been discontinued in 1911. Because of its superior quality, steel made by the open-hearth process has practically displaced Bessemer steel in the manufacture of rails. Rails are generally classified as heavy or light, with the division point between the two at about 60 pounds per yard. Heavy rails are principally used for railways, while light rails are used in mines and for certain other industrial purposes. Because of increase in the use of heavier rolling stock over a long period of years, it has become necessary to employ rails and track material of considerably increased weight per yard, particularly on the main lines of the principal railroads. The standard length of heavy rails is 39 feet and of lighter grades, usually 30 feet. Part of the worn out or defective rails are rerolled into lighter rails or various other products.

The United States usually leads the world in the production of rails and other track material, and supplies all but a very small part of domestic requirements. Considerable quantities are also exported. In prosperous years domestic demand is sufficiently large to require the utilization of most of the available capacity; in years of low business activity, however, only a small part of such capacity is utilized.

Between June 30, 1938 and January 1, 1945 the United States annual capacity for producing rails increased by 20 percent, reaching 4,049,000 tons on the latter date. Slightly more than 90 percent of this capacity was for the production of standard heavy rails. The United States Steel Corp., principally through its subsidiary the Carnegie-Illinois Steel Corp., owned on January 1, 1945, 56 percent of the total United States capacity. The other producers in the order of their capacity were: Bethelehem Steel Co., Colorado Fuel and Iron Corp., Inland Steel Co., West Virginia Steel and Mfg. Co., and Sweet's Steel Co. The last two companies have facilities for the production of light rerolled rails only; Inland Steel Co. produces only heavy rails. On January 1, 1945 Pennsylvania accounted for slightly more than one-third of the total capacity, and Indiana for about one-fourth; Alabama, Colorado, New York, Maryland, and Ohio were the other producing States.

Imports of rails and other track material have never amounted to more than a small fraction of total domestic consumption, even in the peak year 1926 when they totaled about 70,000 tons, valued at $1,725,000. Imports since then have been much smaller, ranging between 19,000 tons in 1928 and 9,000 tons in 1938. However, these imports, consisting almost entirely of light rails (chiefly mine rails) and accessories, have been equal at certain times, especially in years of low domestic demand, to a substantial percentage of the domestic production of similar products. In the period 1931-33, when domestic production of rails was drastically curtailed, imports continued to come in at about the pre-depression rate and were equivalent to about 12 percent of the domestic production of light grades. However, as previously indicated, domestic demand for light rails is very small in comparison with that for heavy rails, of which there have been virtually no imports.

Canada has been the principal source of United States imports for many years. The location of rail mills at Sault Ste. Marie, Ontario, Canada, permits the use of low cost transportation to United States ports on the Great Lakes. Germany, the principal foreign producer before the war, usually ranked second as a supplier of United States imports, although in some years it occupied first place. Belgium also exported small quantities to the United States before the war.

Prewar imports were small for a number of reasons. The most important reason was that the principal railroads in the United States derive considerable revenue from the steel mills for transportation of raw materials and finished products, and it is therefore to the railroads' interest to use domestic rails and other railway materials. Quality and promptness in delivery were also important factors favoring the domestic products. Furthermore, imports from Europe were regulated by the

International Rail Cartel, on which the United States producers were represented through the former Steel Export Association of America. The effect of cartel regulation was to reduce exports of heavy rails from Europe to the United States. Import duties, which have been comparatively low, have had some restricting influence on imports of the light grades of rails especially in times of low business activity; heavy rails would probably not have entered in significant quantities even if duty-free.

Exports, which have largely consisted of heavy rails, have always been many times larger than imports and have been shipped to many countries throughout the world. South and Central America, Mexico, and Canada have been among the principal markets. Exports to Canada in most years have exceeded imports from that country, but in such years as 1932 and 1933, when United States exports were greatly reduced, the reverse situation prevailed. An important advantage which the domestic producers have had over foreign producers in foreign markets has been the high quality of rails and other railway material produced in this country.

In the future, import duties are not likely to have any greater effect on the volume of imports than in prewar years. If there is no rail cartel restricting exports to the United States, many European producers may desire to make larger exports to the United States, but it is doubtful whether they will be able to do so. Reciprocal trade interests between railroads and iron and steel concerns, the high quality of the domestic product, and other factors will most likely continue to favor domestic producers as against foreign producers in this market.

Rails and accessories: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Railway fishplates or splice bars and tie plates | $28,797 | CANADA, $24,893; Belgium, $2,100; France, $1,465; Germany, 1/ $339 |
| Rails, rail braces, and bars for railways | 176,817 | CANADA, $140,422; Belgium, $18,639; France, $10,059; Germany, 1/ $7,697 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# AXLES AND PARTS, ETC., OF IRON OR STEEL

Stat. import class (1939): 6113.6

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries 3/ | CANADA | Belgium |
| | Quantity (short tons) | | | | |
| 1937 | 141,783 | n.a. | 31 | 17 | 14 |
| 1938 | n.a. | n.a. | 61 | 38 | 23 |
| 1939 | 85,617 | n.a. | 17 | 11 | 6 |
| 1943 | n.a. | 4/ 62,157 | 38 | 38 | - |
| | Value (dollars) | | | | |
| 1937 | 11,424,076 | n.a. | 3,044 | 1,603 | 1,441 |
| 1938 | n.a. | n.a. | 4,101 | 1,767 | 2,334 |
| 1939 | 6,152,519 | n.a. | 1,148 | 785 | 363 |
| 1943 | n.a. | 4/6,136,838 | 2,393 | 2,393 | - |

1/ Includes axles, rolled and forged, made for sale and interplant transfer.
2/ Exports probably exceed imports.
3/ No imports containing dutiable alloy.
4/ Includes 55,864 short tons valued at $5,509,607 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 323 | | | |
| Axles and parts thereof, axle bars, axle blanks, and forgings for axles, of iron or steel, without reference to the stage or state of manufacture, n.s.p.f., valued at not more than 6 cents per pound 1/ | 6/10 | 2/3/10 | CANADA |

1/ Subject to additional duties for alloy content, as specified in paragraph 305.
2/ Trade agreement with Canada, effective January 1939.
Note.- The rate of duty on total imports in 1939 was equivalent to 9 percent ad valorem.

## Comment

Railway axles are forged steel shafts which support the car and are rigidly attached to the wheels. When imported separately they are dutiable at the rate specified above, but when fitted with railway car wheels they are dutiable under paragraph 394 at the same rate as the wheels (1¢ per pound). Excluded from this digest are also axles for automobiles, automobile trucks, motorcycles, and bicycles, which are dutiable under paragraphs 369 and 371 (see separate digests).

The United States Bureau of the Census reports that there were 10 establishments in the United States producing axles in 1939. The largest domestic producer is the U. S. Steel Corp., which through its subsidiaries, Carnegie-Illinois Steel Corp. and Tennessee Coal, Iron, and Railroad Co., owned on January 1, 1945 more than half of the total United States capacity for the production of axles.

AXLES AND PARTS, ETC., OF IRON OR STEEL-Continued

According to the American Iron and Steel Institute, five concerns, including the U. S. Steel Corp., on January 1, 1945 owned a total annual capacity of nearly 400,000 tons. This total represents practically all of United States capacity.

Imports in most years have been less than 100 tons. The largest imports in recent years were in 1927, but even in that year they amounted to less than 400 tons in quantity. Imports of axles have been small partly because American railroad and other transportation equipment differs in design from the equipment used in most foreign countries. In competing in the United States market, foreign producers must produce articles for which they have no large home market and, in addition, they must compete with efficient United States producers who manufacture axles of very high quality and who have ample resources and productive capacity. Another important factor restricting imports is that steel mills are among the railroads' best customers and the railroads as a matter of business reciprocity, prefer to buy their equipment from domestic producers.

# IRON OR STEEL WHEELS FOR RAILWAYS

Stat. import classes (1939): 6113.5, 6113.504

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 3/ | BELGIUM | Germany 4/ | Canada |
| | Quantity (short tons) | | | | | |
| 1937 | 946,909 | 31,110 | 347 | 321 | 4 | 22 |
| 1938 | n.a. | 23,450 | 152 | 73 | 72 | 7 |
| 1939 | 676,493 | 31,225 | 141 | 103 | 36 | 2 |
| 1943 | n.a. | 5/ 77,980 | 21 | - | - | 21 |
| | Value (dollars) | | | | | |
| 1937 | 33,678,337 | 2,342,749 | 32,937 | 29,169 | 388 | 3,380 |
| 1938 | n.a. | 1,899,417 | 15,057 | 7,688 | 6,516 | 853 |
| 1939 | 27,163,142 | 2,545,623 | 12,692 | 9,540 | 2,772 | 380 |
| 1943 | n.a. | 5/ 9,420,923 | 4,163 | - | - | 4,163 |

1/ Includes (a) car and locomotive wheels, rolled and forged in steelworks and rolling mills for sale or interplant transfer, and (b) chilled-iron railway wheels.

2/ Includes exports of car wheels, tires, and axles, prior to 1943; exports of wheels, are believed to constitute the bulk of exports.

3/ Imports containing dutiable alloys were insignificant in 1937 and nil thereafter.

4/ Includes Austria beginning 1938.

5/ Includes 53,991 tons valued at $6,783,951 exported under lend-lease.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Cents per pound | | |
| Par. 324 | | | |
| Wheels for railway purposes, and parts thereof, of iron or steel, and steel-tired wheels for railway purposes, wholly or partly finished, and iron or steel locomotive, car, or other railway tires and parts thereof, wholly or partly manufactured ---------- | 1 | 1 | BELGIUM |

Note. In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). The ad valorem equivalent of the specific rate on all imports in 1939 subject to this base rate was 22 percent.

IRON OR STEEL WHEELS FOR RAILWAYS--Continued

Comment

There are two general types of railway wheels in use: (1) a steel-tired wheel, consisting of a hub or center section around which a steel tire is placed to form the wheel's tread, and (2) a solid, one-piece disc wheel of either iron or steel. The solid steel wheel is generally produced by forging and rolling, and sometimes by casting, and to meet wearing conditions it is often heat treated. The solid wheel, if of iron, is cast with a very hard chilled tread, which improved wearing qualities.

American and European practices in the use of solid and steel-tired wheels differ widely. In the United States the general use of steel-tired wheels has long been discontinued, except for the driving wheels for locomotives. Practically all cars, locomotives (except for the driving wheels ), and tenders are now equipped with solid wheels. Solid steel wheels are used on all passenger cars and on an increasing number of freight cars. Most freight cars are equipped with chilled-iron wheels. With a few exceptions, European locomotives and railway cars are equipped with steel-tired wheels.

Domestic production has supplied practically all domestic requirements and furnished considerable quantities for export. Production of chilled-iron car wheels is several times larger than that of steel wheels, the ratio in 1939 being more than three to one.

The bulk of the domestic output of steel car and locomotive wheels comes from the steelworks and rolling mills of five large iron and steel companies which, on January 1, 1945, together had a capacity for rolled steel car wheels of 315,400 tons. Carnegie-Illinois Steel Corp. is the largest of these five producers.

Chilled-iron car wheels are manufactured by a considerable number of foundries, generally specializing in the manufacture of iron car wheels and operated by companies which either make other products or are subsidiary companies of manufacturers of railway cars or other railway equipment.

Imports have been very small. Belgium, Germany, and Canada supplied imports before the war. Foreign producers, in competing in the United States market, must produce articles of types for which they have no large home market and must compete with efficient United States producers who manufacture wheels of very high quality and who have ample resources and productive capacity. An additional factor restricting imports is the high cost of transportation due to the relatively low value per unit of weight of these products. Another important factor is that steel mills are among the railroads' best customers and the latter, as a matter of business reciprocity, prefer to buy their equipment from domestic producers.

# PIPES AND TUBES OF IRON OR STEEL, WELDED AND SEAMLESS (EXCEPT TUBES FOR MANUFACTURING ANTI-FRICTION BEARINGS)

Stat. import classes (1939): 6092.0-.4 and 6092.8

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports 1/ | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Germany 2/ | BELGIUM | France | Canada |
| | Quantity (short tons) | | | | | | |
| 1937 - | 3/4,282,584 | 180,131 | 41,973 | 37,609 | 1,705 | 354 | 1,089 |
| 1938 - | 3/2,580,463 | 124,784 | 30,008 | 20,239 | 4,527 | 1,508 | 890 |
| 1939 - | 3/3,764,272 | 199,609 | 31,556 | 27,834 | 1,461 | 1,489 | 720 |
| 1943 - | 3/6,219,345 | 4/ 512,544 | 5/ 541 | - | - | - | 515 |
| | Value (dollars) | | | | | | |
| 1937 - | 6/206,189,297 | 17,270,720 | 3,207,022 | 2,866,882 | 94,958 | 20,614 | 117,923 |
| 1938 - | n.a. | 13,104,032 | 2,100,502 | 1,498,084 | 319,848 | 84,774 | 32,226 |
| 1939 - | 6/165,492,355 | 19,672,916 | 2,256,534 | 2,045,038 | 84,261 | 77,541 | 26,024 |
| 1943 - | n.a. | 4/62,699,599 | 5/101,606 | - | - | - | 95,245 |

1/ Includes fittings for iron and steel pipes, n.s.p.f., 1937-39.
2/ Includes Austria beginning 1938.
3/ Includes seamless, lap-weld, butt-weld, electric-weld, gas-weld, and spiral-weld pipe and tubes. Production of tubes for manufacturing anti-friction bearings are not separately reported and are included in these figures as well as in the figures of values. American Iron and Steel Institute, Annual Statistical Report.
4/ Includes 340,306 short tons valued at $41,246,867, exported under lend-lease.
5/ Free for Government use 53 short tons, valued at $8,112 from Canada; also includes 26 short tons valued at $4,300 free as an act of international courtesy.
6/ Value of output of wrought-welded, and seamless pipe and tubes (including stainless) and heavy-riveted and lock-joint pipe.
Source: Official statistics of the U. S. Department of Commerce, except as noted.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 328 | | | |
| Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, and stays, not thinner than 65/1000 inch: 1/ | | | |
| Not less than 3/8 inch in diameter | 3/4¢ per lb. | 3/4¢ per lb. | BELGIUM |
| Less than 3/8 inch and not less than 1/4 inch in diameter | 1¼¢ per lb. | 1¼¢ per lb. | do. |
| Less than 1/4 inch in diameter | 1-3/4¢ per lb. | 1-3/4¢ per lb. | do. |
| Finished or unfinished iron or steel tubes not specially provided for, except anti-friction bearing tubes | 25% ad val. | 25% ad val. | do. |

1/ Provided that no tubes, pipes, flues, or stays made of charcoal iron shall be subject to a less rate of duty than 1¼ cents per pound.
Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest). The

ad valorem equivalents of the base specific rates on imports in 1939 subject to such base rates only were as follows: 3/4¢ per pound, equivalent to 25 percent ad valorem; 1-1/4¢ per pound, equivalent to 22 percent ad valorem. There were no imports in 1937-39 dutiable at the 1-3/4¢ per pound rate; in 1936, the latter rate on all imports subject to it was equivalent to 67 percent ad valorem, and in 1935 it was equivalent to 24 percent ad valorem.

## Comment

This report covers all wrought tubular products of iron or steel, with the exception of tubes for manufacturing anti-friction bearings 1/ and tubes or pipes prepared and lined or coated for use as conduits for electrical conductors. The bulk of the imports of bearing tubes come from Sweden. The term "wrought" distinguishes worked iron or steel pipe from cast iron pipe. The latter product is treated in a separate digest (par. 327).

Wrought tubular products are used for a great variety of purposes, such as conducting water, fuel, gas, steam, air, and oil; in plumbing and heating; and for boiler tubes, bedstead tubing, flag poles, lighting poles, railings, scaffolds, fence poles, telephone and telegraph poles, etc. On the basis of method of manufacture, wrought tubular products are classified as (1) welded and (2) seamless. Welded pipe and tubes are generally made from skelp (hot-rolled strip), and are of two principal varieties: (1) Butt-welded or lap-welded, and (2) electric-welded. The butt-weld process is generally used in the manufacture of pipe 1/8 inch to 3 inches in diameter. The skelp is heated to the welding temperature and then drawn through a die which bends it into a cylindrical shape and presses its edges together into a butt weld, thus forming a pipe. The electric-weld process is employed to produce pipe and tubes in standard sizes as well as in those beyond the practical limits of the seamless process.

The seamless process consists either of piercing a pre-heated solid bar or billet or of pressing a pre-heated solid round plate through cup-shaped dies. This process is used to produce pipe of high strength and high resistance to fatigue stresses, such as is required for some purposes in the oil, oil-refining, and chemical industries and for conducting high-pressure steam.

In 1944 wrought pipe and tubes represented 8.8 percent of the total tonnage of semifinished and finished iron and steel products produced (i.e., shipped) in the United States. A large part of the United States capacity for the production of wrought pipe and tubes is owned by concerns which also roll the materials (skelp, etc.) for the manufacture of these products. The leading domestic producer is the U. S. Steel Corp., which on January 1, 1945, through its subsidiary, the National Tube Co. owned 42 percent of the total United States capacity for seamless pipe and tubes and 23 percent of the capacity for butt-weld pipe. The next three largest domestic producers of seamless pipe and tubes are Youngstown Sheet and Tube Co., Jones and Laughlin Steel Corp., and National Supply Co., which together on January 1, 1945 accounted for 34 percent of the total United States capacity for such pipe and tubes. The preceding four companies together with Republic Steel Corp., Wheeling Steel Corp., and Bethlehem Steel Co., also accounted on the same date for 83 percent of the United States productive capacity for butt-weld pipe. Largest among the producers of electric-weld pipe and tubes are Republic Steel Corp., A. O. Smith Corp., and Youngstown Sheet and Tube Co., together accounting on January 1, 1945 for 87 percent of the total domestic capacity.

As the following table shows, the war brought about considerable change in the industry, notably the increase in electric-weld capacity and production.

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1/ Presumably negotiation of the rate of duty on anti-friction bearing tubes will be with a country or countries other than those proposed for pipes and tubes included in this digest. In such an event for tariff purposes it may be necessary to set up a new class (for anti-friction bearing tubes) and to provide a definition for this class.

PIPES AND TUBES OF IRON OR STEEL, WELDED AND SEAMLESS
(EXCEPT TUBES FOR MANUFACTURING ANTI-FRICTION BEARINGS)-Continued

Pipes and tubes of iron or steel: United States capacity, production, and percent changes, by kind, 1938 and 1944

| | Capacity | | | Production | | |
|---|---|---|---|---|---|---|
| | Total | | Increase(+) or decrease(-) | Total | | Increase(+) or decrease(-) |
| | June 30, 1938 | Jan. 1, 1945 | | 1938 | 1944 | |
| | 1,000 short tons | 1,000 short tons | Percent | 1,000 short tons | 1,000 short tons | Percent |
| Seamless pipe and tubes | 3,506 | 3,546 | + 1 | 1,277 | 3,121 | + 144 |
| Butt-weld and lap-weld pipe | 3,887 | 3,189 | - 18 | 1,034 | 2,140 | + 107 |
| Electric-weld pipe and tubes | 876 | 1,606 | + 83 | 269 | 1,072 | + 299 |
| Gas-weld and spiral-weld pipe | | 105 | | | 73 | |
| Total | 8,269 | 8,446 | + 2 | 2,580 | 6,406 | + 148 |

Source: American Iron and Steel Institute.

During the war there was a very large increase in the production of all types, especially of electric-weld and seamless pipe and tubes. Seamless pipe and lap- and butt-weld pipe are the most important individual items of domestic production. Electric-weld pipe and tubes have become increasingly important in recent years, especially since the out break of the war, and accounted for almost one-sixth of the total production of wrought pipe and tubes in 1944.

Prewar imports were small compared with domestic production, although they constituted an important part of total United States import trade in iron and steel. In 1937 pipes and tubes constituted 21 percent by value and 15 percent by weight of the total imports of finished iron and steel products. Seamless tubes alone for many years have been the most important single iron and steel import item, in terms of value, although in terms of tonnage such products as structural shapes and bars have been more important.

Imports of the seamless varieties are by far the more important, having accounted before the war, for over two-thirds of total imports of pipes and tubes by weight and for a much larger proportion by value.

Germany, by introducing new and economical processes for the manufacture of seamless tubes, became the world's largest exporter of wrought tubular products in the interwar period, and for many years supplied the bulk of the United States imports. Belgium, France, and Canada were the chief secondary sources in recent prewar years, and for many years have supplied small amounts of imports. The United Kingdom was an important supplier of United States imports in the first part of the decade preceding the war, but imports from that country steadily declined in later years and were less than $20,000 in 1939, as compared with over $1,000,000 in 1929. Imports from Sweden of pipe and tubes, other than tubes for the manufacture of ball and roller bearings, also underwent a steady decline in the decade preceding the war, from $358,000 in 1929 to $5,000 in 1939.

Total imports of wrought pipe and tubes (other than for ball and roller bearings and electrical conduits) reached a peak of $4,487,000 in 1929. The second highest point was attained in 1937. The bulk of the imports was consumed along the Atlantic and Pacific seaboards; because of internal transportation costs, only a few high-priced specialties could effectively compete with domestic production in inland markets.

The domestic industry is principally made up of a few large integrated producers who possess large resources and the most advanced means of production and who will, therefore, in the post-war period (as before) be in a position to compete effectively with foreign producers in both domestic and foreign markets. Foreign producers will

PIPES AND TUBES OF IRON OR STEEL, WELDED AND SEAMLESS
(EXCEPT TUBES FOR MANUFACTURING ANTI-FRICTION BEARINGS)-Continued

hardly be in a position, at least for some years, to compete even as effectively as in prewar years.

Prewar exports were many times larger than imports; in 1937 they were 9.4 percent by value and 6.8 percent by weight of total United States exports of finished iron and steel products. Although the United States exported many kinds of pipe and tubes to practically every country in the world, for many years seamless pipe for casing and oil lines has been by far the most important export item and Venezuela the principal market for such pipe. Canada was the next largest United States market for pipe and tubes, principally of the seamless varieties; Mexico, Colombia, British India, and the Netherlands Indies were other important markets.

Pipes and tubes: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Not thinner than 65/1000 inch: | | |
| Not less than 3/8 inch in diameter | 1/ $301,528 | Germany, 2/ $146,006; BELGIUM, $81,459; France, $62,332; Canada, $11,616 |
| Less than 3/8 inch and not less than 1/4 inch in diameter | 1/228 | BELGIUM, $136; Germany, 2/ $92 |
| Less than 1/4 inch in diameter | - | |
| Tubes, n.s.p.f. | 3/1,954,778 | Germany, 2/ $1,898,940; United Kingdom, $18,454; France, $15,209; Canada, $14,408; Sweden, $5,101; BELGIUM, $2,666 |

1/ Imports of alloy grades were nil.
2/ Includes Austria.
3/ Imports of alloy grades included amounted to $13,260.
Source: Official statistics of the U. S. Department of Commerce.

# ELECTRICAL CONDUITS

Stat. import class (1939): 6092.6

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | | |
| | Quantity (short tons) | | | | | |
| 1937 --- | Not | n.a. | N | N | | |
| 1938 --- | | n.a. | O | O | | |
| 1939 --- | avail- | n.a. | N | N | | |
| 1943 --- | able | 1/ 4,140 | E | E | | |
| | Value (dollars) | | | | | |
| 1937 --- | 2/20,127,000 | n.a. | N | N | | |
| 1938 --- | n.a. | n.a. | O | O | | |
| 1939 --- | 3/20,768,000 | n.a. | N | N | | |
| 1943 --- | n.a. | 1/637,941 | E | E | | |

1/ Includes 793 short tons, valued at $144,501 exported under lend-lease.
2/ Includes standard weight conduit, including elbows and couplings.
3/ Includes items listed in footnote 2 plus thin-wall conduits and fittings.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 328 | | | |
| Rigid iron or steel tubes or pipes prepared and lined or coated in any manner suitable for use as conduits for electrical conductors | 30 | 30 | CANADA |

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305(see separate digest).

## Comment

There were no imports of electrical conduits between 1937 and 1939, and they were insignificant or nil in previous years.

ALLOY STEEL OR IRON--ADDITIONAL DUTIES

Stat. import classes (1939): Various

United States production, exports, and imports, 1937-39 and 1943 1/

| Year | Production 2/ | Domestic exports 3/ | Imports of alloyed steel and iron for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Sweden | UNITED KINGDOM | Canada |
| | Quantity (short tons) | | | | | |
| 1937 | 3,396,541 | 33,060 | 16,402 | 13,877 | 384 | 15 |
| 1938 | 1,653,510 | 30,266 | 7,479 | 6,523 | 170 | 3 |
| 1939 | 3,211,955 | 84,768 | 6,682 | 5,672 | 113 | 17 |
| 1943 | 13,149,818 | 4/ 639,419 | 5/ 3,093 | 3 | 6/ | 3,090 |
| | Value (dollars) | | | | | |
| 1937 | Not | 5,281,052 | 2,401,370 | 1,890,938 | 178,148 | 2,766 |
| 1938 | | 5,030,744 | 1,232,488 | 1,003,775 | 74,162 | 2,395 |
| 1939 | avail- | 10,016,166 | 1,065,411 | 871,937 | 66,594 | 7,183 |
| 1943 | able | 90,632,676 | 640,911 | 2,376 | 2,061 | 636,474 |
| | Unit value (per short ton) | | | | | |
| 1937 | Not | $160 | $146 | $136 | $464 | $184 |
| 1938 | | 166 | 165 | 154 | 436 | 798 |
| 1939 | avail- | 118 | 159 | 154 | 589 | 423 |
| 1943 | able | 142 | 207 | 792 | 100,536 | 206 |
| | Unit value (per pound) | | | | | |
| 1937 | Not | $0.080 | $0.073 | $0.068 | $0.232 | $0.092 |
| 1938 | | .083 | .082 | .077 | .218 | .364 |
| 1939 | avail- | .059 | .080 | .077 | .295 | .208 |
| 1943 | able | .071 | .104 | .464 | 50.268 | .103 |

1/ Statistics of production, exports, and imports are also included in statistics of other digests covering paragraphs where the base duties are imposed.

2/ Alloy steel ingots and castings. Includes only that portion of the production of steel for castings produced in foundries which were operated by companies producing steel ingots.

3/ Includes alloyed ingots, blooms, billets, etc.; steel bars; plates, sheets, strips, hoops, and bands of iron or steel; and steel castings and forgings. The foregoing are the major alloyed products exported and there are others which are not separately reported.

4/ Includes 572,035 short tons valued at $78,718,231 exported under lend-lease.

5/ Free for Government use, 667 short tons valued at $189,183.

6/ Less than one-half short ton.

Source: Production from American Iron and Steel Institute, Annual Statistical Report; exports and imports from official statistics of the U. S. Department of Commerce.

ALLOY STEEL OR IRON--ADDITIONAL DUTIES--Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 1/ | 1945 rate 1/ | |
| Par. 305 | | | |
| All steel or iron in the materials and articles enumerated or described in paragraphs 303, 304, 307, 308, 312, 313, 315, 316, 317, 318, 319, 322, 323, 324, 327, and 328 of the Tariff Act of 1930, when containing: | | | |
| More than 1/10% of vanadium: | | | |
| Valued over 3½ but not over 8¢ lb. | 8% ad val. + $1 per lb. of vanadium content | 4% ad val. 2/ + $1 per lb. of vanadium content | UNITED KINGDOM |
| Other | 8% ad val. + $1 per lb. of vanadium content | 8% ad val. + $1 per lb. of vanadium content | do. |
| More than 2/10% of tungsten: | | | |
| Valued over 3½ but not over 8¢ lb. | 8% ad val. + 72¢ lb. of tungsten content | 4% ad val. 2/ + 72¢ lb. of tungsten content | do. |
| Other | 8% ad val. + 72¢ lb. of tungsten content | 8% ad val. + 72¢ lb. of tungsten content | do. |
| Molybdenum: | | | |
| Valued over 3½ but not over 8¢ lb. | 8% ad val. + 65¢ lb. of molybdenum content | 4% ad val. 2/ + 65¢ lb. of molybdenum content | do. |
| Other | 8% ad val. + 65¢ lb. of molybdenum content | 8% ad val. + 65¢ lb. of molybdenum content | do. |
| Chromium: | | | |
| Valued over 3½ but not over 8¢ lb. | 8% ad val. + 3¢ lb. of chromium content | 4% ad val. 2/ + 3¢ lb. of chromium content | do. |
| Other | 8% ad val. + 3¢ lb. of chromium content | 8% ad val. + 3¢ lb. of chromium content | do. |

ALLOY STEEL OR IRON--ADDITIONAL DUTIES--Continued

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 305 | | | |
| All steel or iron in the materials and articles enumerated in, etc.--Cont'd. when containing: | | | |
| More than 6/10% of nickel, cobalt, or any other metallic element used in alloying steel or iron: 3/ | | | |
| Valued over 3½ but not over 8¢ lb. | 8% ad val. | 4% ad val. 2/ | UNITED KINGDOM |
| Other | 8% ad val. | 8% ad val. | do. |

1/ Rates are in addition to duties provided in the tariff act paragraphs mentioned in paragraph 305.

2/ Trade agreement with Sweden, effective August 1935.

3/ Phosphorus is not considered an alloying material unless present in the steel or iron in excess of 5 percent; nor is manganese or silicon so considered unless either is present in the steel in excess of 1 percent, or unless either is present in the iron in excess of 3 percent.

Note.- The ad valorem equivalents (calculated on the basis of the total weight and value of the alloyed products) of the additional duties of paragraph 305 and of the base and other additional duties in 16 specified paragraphs on all imports in 1939 are shown below, both separately and in total.

| Paragraph | Duty | Ad valorem equivalent (Percent) |
|---|---|---|
| 305 | 4% or 8% ad val. | 5.6 |
| 305 | Various specific duties | 2.2 |
| Various | Various base and other duties | 21.9 |
| Total | | 29.7 |

## Comment

United States production of alloy steel ingots and castings increased from 3.2 million tons in 1939 to 13.1 million tons in 1943, largely because of the war program. It amounted to about 6 percent of total steel production in 1939 and nearly 15 percent in 1943. During the next few years the demand for alloy steel will be large because of its use in the automotive and many other industries. The demand, however, probably will be considerably less than the wartime peak.

From 65 to 80 percent of the alloy steel output is made in open-hearth furnaces and nearly all of the remainder in electric furnaces. For the most part, alloyed open-hearth steel is of relatively low alloy content and is of the tonnage-steel grade. Higher priced grades, largely tool and fine steel often highly alloyed, are made chiefly in electric furnaces. Tool and fine steels may contain anywhere from a small fraction of 1 percent of alloy to more than 30 percent, and include such high-priced grades as high-speed steel and stainless steel. Under normal peacetime conditions the automotive industry is the largest consumer of alloyed steels, but they are also used in the machine tool, machinery, railroad, construction, and many other industries.

ALLOY STEEL OR IRON--ADDITIONAL DUTIES--Continued

For many years imports of all grades of alloy steel have been equal to less than 1 percent of production. In some branches of the industry, however, such as the tool-steel-bar branch (all imported bars having a foreign value over 5¢ per pound, and all domestic bars valued over about 10 or 12¢ per pound), the ratio was somewhat higher in certain prewar years. The tool-steel-bar branch of the industry experienced greater competition from imports, partly because of the prestige value of some of the British and Swedish products. However, the domestic industry made much progress during the war through the construction of large and efficient electric and open-hearth furnaces and the development of new kinds of alloy steel and iron.

The table below shows in summary form the imports of all alloy steel or iron by value brackets and principal sources in 1937, 1939, and 1943. Canada became the principal source in 1943 as a result of war conditions and may be of greater importance as a supplier after the war than it was before because of the development of capacity greatly exceeding Canada's normal peacetime requirements.

Alloy steel or iron: United States imports for consumption, by principal sources, 1937-39

| Value bracket (Cents per pound) | Total | Principal sources | | |
|---|---|---|---|---|
| | | Sweden | UNITED KINGDOM | Canada |
| 1937: | | | | |
| Not over $3\frac{1}{2}$ | $8,936 | $8,936 | - | - |
| $3\frac{1}{2}$ - 8 | 1,639,638 | 1,384,359 | $9,057 | $585 |
| Over 8 | 752,796 | 497,643 | 169,091 | 2,181 |
| Total | 2,401,370 | 1,890,938 | 178,148 | 2,766 |
| 1939: | | | | |
| Not over $3\frac{1}{2}$ | 3,043 | 3,043 | - | - |
| $3\frac{1}{2}$ - 8 | 687,228 | 586,711 | 36 | - |
| Over 8 | 375,140 | 282,183 | 66,558 | 7,183 |
| Total | 1,065,411 | 871,937 | 66,594 | 7,183 |
| 1943: | | | | |
| Not over $3\frac{1}{2}$ | 210 | - | - | 210 |
| $3\frac{1}{2}$ - 8 | 114,080 | - | - | 114,080 |
| Over 8 | 526,621 | 2,376 | 2,061 | 522,184 |
| Total | 640,911 | 2,376 | 2,061 | 636,474 |

Source: Official statistics of the U. S. Department of Commerce.

It will be noted from the above table that immediately before the war Sweden was the principal source in all three value brackets. In certain earlier years ranging back to before World War I, the United Kingdom was the principal source of imports, especially of those valued over 8¢ per pound. That country is planning to modernize its iron and steel industry and in the long run (say 10 years hence) may again become the leading supplier. The most probable assumption is, however, that Sweden will regain its prewar position.

ALLOY STEEL OR IRON--ADDITIONAL DUTIES--Continued

The additional ad valorem rates of 4 and 8 percent on iron and steel containing alloys (especially of course the 4 percent rate) are only a relatively minor part of the total duties on such iron and steel, the major part consisting of the basic rates to which these are added, most of which range from 20 to 30 percent in ad valorem equivalent.

# SPINNING AND TWISTING RING TRAVELERS

Stat. import class (1939): 610.02

United States production, exports, and imports for consumption 1937-39 and 1943

| Year | Production 1/ | Domestic exports 1/ | Imports 2/ |
|---|---|---|---|
| | Quantity (pounds) | | |
| 1937 | Not available | Not available | 566 |
| 1938 | | | 75 |
| 1939 | | | 39 |
| 1943 | | | - |
| | Value (dollars) | | |
| 1937 | 1,000,000 | 30,000 | 227 |
| 1938 | 1,000,000 | 30,000 | 115 |
| 1939 | 1,000,000 | 30,000 | 114 |
| 1943 | 1,500,000 | n.a. | - |

1/ Estimated.
2/ All from the UNITED KINGDOM.
Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 316(a) | | | |
| Spinning and twisting ring travelers | 35 | 35 | UNITED KINGDOM |

## Comment

Ring travelers are small open rings or loops of metal, usually steel, varying in dimension from fine wire to a stiff band. They are small but essential parts of equipment used in spinning or twisting yarn. Travelers are made in hundreds of sizes and shapes and as they have to be replaced frequently it is necessary that both textile mills and the domestic manufacturers maintain large stocks at all times. These devices are made in the United States on automatic machines by a half dozen small firms in New England which also make other small accessories for textile mills. Close proximity to the domestic market and direct contact with textile mills in this country give the domestic manufacturers a competitive advantage over foreign producers. Imports for many years have been very small compared with domestic production and exports.

Stat. import class (1939): 610.45

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Germany 1/ | Switzerland | FRANCE | Belgium |
| | Quantity (thousands) | | | | | | |
| 1937 | Not available | Not available | 10,747 | 3,747 | 1,601 | 2,032 | 1,243 |
| 1938 | | | 5,421 | 2,889 | 282 | 238 | - |
| 1939 | | | 5,515 | 2,460 | 1,311 | 1,137 | 607 |
| 1943 | | | - | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | n.a. | Not available 3/ | 16,974 | 9,103 | 2,652 | 2,084 | 1,508 |
| 1938 | n.a. | | 8,446 | 6,504 | 604 | 370 | - |
| 1939 | 2/ 750,000 | | 10,728 | 5,641 | 2,925 | 1,299 | 863 |
| 1943 | n.a. | | - | - | - | - | - |

1/ Includes Austria beginning 1938. 2/ Estimated. 3/ Probably small.
Source: Official statistics of the U. S. Department of Commerce, except as noted.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 316(a) | | | |
| Wire heddles and healds ------- | 25¢ per thousand + 30% ad val. | 25¢ per thousand + 30% ad val. | FRANCE |

Note.- The compound rate was equivalent in 1939 to 43 percent ad valorem.

## Comment

Wire heddles are lengths of wire several inches long, with an eye in the center. Each warp yarn in a loom passes through a heddle eye, by which it is raised and lowered to permit the passage of the shuttle. Wire heddles are replacing the cotton heddles formerly used. Healds is the name used in England for heddles.

Flat heddles, made from thin flat wire, are increasingly more widely used than those made from round wire. The latter are made either by soldering together two wires laid side by side (twin wire heddles) or by twisting two wires together (French, or twisted wire heddles). An eyelet may be soldered into the eye for greater smoothness.

Flat heddles were developed in Switzerland, but are not so extensively used abroad as in the United States, where they greatly predominate. They are made in the United States by about six firms who also make other textile-mill accessories. Switzerland is the chief European source of production and of United States imports of this type. Twin-wire heddles were developed in Germany and imports have been chiefly from that country. They are also made in several other European countries. In the United States they are made by three firms who also make other accessories for textile mills; one of them also makes flat heddles. Twisted wire heddles are made chiefly in France and Belgium. They are the least used of the three types.

WIRE HEDDLES AND HEALDS-Continued

Imports of heddles have been declining from a peak of $186,000 in 1925, probably because flat heddles of domestic manufacture are gaining wide acceptance by domestic mills. The duty under the act of 1930 is the same as under the act of 1922.

## INSULATED WIRE

Stat. import classes (1939): 643.06 and 6095.0

United States production, exports and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from--- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Germany 1/ | Denmark | Canada |
| | Quantity (1,000 pounds) | | | | | | |
| 1937 - | Not available | 15,496 | 443 | 392 | 2 | - | 37 |
| 1938 - | | 14,487 | 2/ 67 | 16 | 9 | - | 1 |
| 1939 - | | 14,850 | 29 | 10 | 5 | 11 | 1 |
| 1943 - | | 3/185,516 | 4/1,724 | 1,686 | - | - | 33 |
| | Value (1,000 dollars) | | | | | | |
| 1937 - | 245,342 | 3,860 | 58 | 50 | 1 | - | 3 |
| 1938 - | n.a. | 3,318 | 2/ 20 | 4 | 2 | - | 5/ |
| 1939 - | 204,430 | 3,101 | 8 | 2 | 4 | 1 | 5/ |
| 1943 - | n.a. | 3/ 53,437 | 4/ 720 | 706 | - | - | 10 |

1/ Includes Austria beginning 1938.
2/ Includes 34 thousand pounds valued at 11 thousand dollars imported from France.
3/ Includes 166,310 thousand pounds valued at 48,288 thousand dollars exported under lend-lease.
4/ Free for Government use, 1,594 thousand pounds valued at 663 thousand dollars.
5/ Less than 500.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 316 (a) | | | |
| Insulated wire (copper) | 35 | 35 + 4¢ lb. (R.A.) 1/ | UNITED KINGDOM |
| Insulated wire (iron or steel) | 35 | 35 | UNITED KINGDOM |

1/ Four cents per pound on copper content under sec. 3425 of Internal Revenue Code. The ad valorem equivalent of the total rate on insulated copper wire was 37 percent in 1939.

### Comment

Insulated wire and cable are used for power, telephone, and signal circuits, and as components of electrical apparatus. By far the greater part is of copper, insulated with rubber, paper, cloth, and various compounds. Much cable is protected with a sheath of lead, which often exceeds the copper in weight. Some covered iron wire is used for fastening decorations.

Insulated wire is made in the United States by the large electrical companies, copper mining interests, steel companies, and firms specializing in wire; insulated telephone wire is made chiefly by a subsidiary of the American Telephone and Telegraph Co. All the industrial countries and to some extent even the more agricultural countries make insulated wire and cable.

Some of the large electrical goods producers in Europe and the United States are ( or have been) parties to agreements which are alleged to have restricted international trade, but there are many others, including those making certain complicated types of cable, which are not parties to such agreements.

INSULATED WIRE - Continued

United States production increased during the war, plant capacity was expanded, and nearly 300,000 miles of wire for military purposes was supplied monthly. The only insulated wire or cable imported insubstantial amounts is submarine telegraph cable, which is insulated with gutta percha. British manufacturers are prominent producers and exporters of this cable. Renewals and new installations of such cable are made only at long intervals.

There are thousands of sizes and types of insulated wire in common use, and the necessity of carrying full dealer stocks is probably an important deterrent to international trade, although United States exports are fairly large, greatly exceeding imports.

Insulated wire: United States imports for consumption, by kind, with principal sources, 1938

| Kind | Total value | Principal sources |
|---|---|---|
| Copper | $6,153 | UNITED KINGDOM, $2,870; Germany 1/, $1,812; Netherlands, $1,238 |
| Iron or steel | 14,144 | France, $11,067; UNITED KINGDOM, $1,591. |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

## SPECIALTY WIRE, EXCEPT WIRE OF GOLD, SILVER, PLATINUM, TUNGSTEN, OR MOLYBDENUM, (WIRE, N.S.P.F.)

Stat. import classes (1939): 643.08, 6458.6, 6459.0, 679.80

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | NETHERLANDS | Germany 1/ | UNITED KINGDOM |
| | Quantity (pounds, gross weight) | | | | | |
| 1937 | 860,000,000 | 10,046,077 | 2/ 402,105 | 621 | 233,389 | 30,323 |
| 1938 | n.a. | 11,090,900 | 110,819 | 922 | 107,058 | 607 |
| 1939 | 773,000,000 | 8,615,353 | 45,291 | 970 | 39,795 | 2,368 |
| 1943 | 1,000,000,000 | 3/ 23,247,205 | 4/ 293,247 | - | - | 10,856 |
| | Value (dollars) | | | | | |
| 1937 | Not available | 1,707,469 | 2/ 144,015 | 14,301 | 82,553 | 10,763 |
| 1938 | | 1,389,782 | 92,298 | 49,147 | 42,273 | 248 |
| 1939 | | 1,333,518 | 78,407 | 60,375 | 15,589 | 1,697 |
| 1943 | | 3/ 5,198,824 | 4/ 61,001 | - | - | 2,027 |

1/ Includes Austria beginning 1938.
2/ Includes 136,059 pounds, valued at $35,800 imported from Switzerland. Negligible in later years.
3/ Includes 18,171,564 pounds, valued at $3,921,940 exported under lend-lease.
4/ Free for Government use, 203,240 pounds, valued at $43,997, all from Canada.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 316(a) | | | |
| **all wire composed of iron, steel, or other metal, not specially provided for (except gold, silver, platinum, tungsten, or molybdenum)** | 25% ad val. | 25% ad val. + 4¢ lb. on copper content 1/ | UNITED KINGDOM NETHERLANDS |

1/ 4 cents per pound is import-excise tax, effective June 1932, and imposed under section 3425 of the Internal Revenue Code.

### Comment

Imports entered under this section of paragraph 316(a) are specialty products such as copper wire, wire of aluminum and magnesium alloys, thorium wire, and musical and surgical wire.

Formerly the most important items were special copper, brass and bronze wires, of which Germany supplied the major portion. Imports from the United Kingdom and Switzerland were chiefly aluminum alloy wire. The Netherlands supplied an aluminum-magnesium wire produced in an American-owned plant and used in the manufacture of photo-flash bulbs. Ferrous wire imported consisted of piano and other music wire from the United Kingdom and Germany.

SPECIALTY WIRE, EXCEPT WIRE OF GOLD, SILVER, PLATINUM, TUNGSTEN, OR MOLYBDENUM, (WIRE, N.S.P.F.)--Continued

The American industry, because of its large and varied line of products, is able to supply practically all the demand, and to maintain a considerable export trade. There is a small demand for certain foreign specialties on a prestige basis.

Wire, not specially provided for (except gold, silver, platinum, tungsten, or molybdenum): United States imports for consumption, by kind, with principal sources, and equivalent ad valorem, 1939

| Kind | Total value | Equivalent ad valorem | Principal sources |
|---|---|---|---|
| | | Percent | |
| Copper wire | $25 | 106 | Belgium, $25 |
| Brass wire | 17 | 35 | Japan, $17 |
| Bronze wire | 17,773 | 34 | Germany 1/, $15,578; UNITED KINGDOM, $1,491 |
| Wire, n.s.p.f. (except of precious metal) | 60,592 | 25 | NETHERLANDS, $60,375; United Kingdom, $206 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# INGOTS, BARS, ETC., CONTAINING OVER 50 PERCENT OF TUNGSTEN, TUNGSTEN CARBIDE, MOLYBDENUM, OR MOLYBDENUM CARBIDE, OR COMBINATIONS, N.S.P.F.



Stat. import classes (1939): 679.57-679.62

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Germany 1/ | Netherlands | UNITED KINGDOM |
| | Quantity (pounds) | | | | | |
| 1937 | Not available (see text) | Not available | 2/ 6,214 | 696 | 831 | 589 |
| 1938 | | | 8,894 | 3,254 | 352 | 5,023 |
| 1939 | | | 6,233 | 4,620 | 1,612 | - |
| 1943 | | | 3/ 1,719 | - | - | - |
| | Value (dollars) | | | | | |
| 1937 | Not available (see text) | Not available | 28,919 | 5,711 | 1,329 | 2,098 |
| 1938 | | | 21,577 | 14,902 | 753 | 5,679 |
| 1939 | | | 23,875 | 21,704 | 1,585 | - |
| 1943 | | | 3/ 58,126 | - | - | - |

1/ Includes Austria beginning 1938.
2/ Includes 4,024 pounds valued at $16,683 imported from Austria.
3/ Imported from Canada.
Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff: Act of 1930 (Percent ad valorem) | United States tariff: 1945 rate (Percent ad valorem) | Proposed negotiating country |
|---|---|---|---|
| Par. 316(b): | | | |
| Ingots, shot, bars, sheets, wire or other forms, n.s.p.f., or scrap, containing more than 50 percent of tungsten, tungsten carbide, molybdenum, or molybdenum carbide, or combinations thereof: | | | |
| Ingots, shot, bars or scrap ----- | 50 | 50 | UNITED KINGDOM |
| Sheets, wire, or other forms ---- | 60 | 60 | UNITED KINGDOM |

## Comment

Molybdenum and tungsten are used principally in the iron and steel industry for making special alloy steels to be used under high fatigue loads, high temperatures and pressures, or under severely corrosive conditions. They may be employed alone as alloying material but commonly are added along with such other well-known ferro-alloying metals as chromium, nickel, manganese, and silicon. The carbides of molybdenum and tungsten are intermediate in hardness between corundum and diamond and have considerable mechanical strength even at red heat. Powdered carbide is mixed with powdered binders, usually cobalt metal, and molded under enormous pressure and sintered at high temperature. The resulting shapes are used to make the cutting edges of machine-tool cutters, and dies for drawing wire. The volume of molybdenum and tunsten consumed in the form of metal is relatively insignificant. Wire, rod, and sheet of these metals for incandescent lamps and electron tubes are produced by only a few companies employing highly skilled labor. These two metals are also used for electrical switch contacts, welding rod facing, and other similar applications.

## INGOTS, BARS, ETC., CONTAINING OVER 50 PERCENT OF TUNGSTEN, TUNGSTEN CARBIDE, MOLYBDENUM, OR MOLYBDENUM CARBIDE, OR COMBINATIONS, N.S.P.F.-Continued

While production figures are not available on the forms which are the subject of this comment, it may be noted that about 30 million pounds of molybdenum (92 percent of the world output) were produced in the United States in 1939, a large part of which was exported in the form of concentrates. The production of tungsten in the United States in 1939 amounted to 4 million pounds. In addition, approximately 1½ million pounds were imported from China in the form of concentrates during the same year.

The duties on these forms are related to the duties on tungsten ore and concentrates, tungsten metal, tungsten carbide, and other tungsten compounds, and on molybdenum and its compounds, occurring in various paragraphs of Schedule 3 of the Tariff Act. (See separate digests.)

WOVEN WIRE CLOTH

Stat. import classes (1939): 610.14-.16

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 1/ | Germany 2/ | NETHERLANDS | CANADA |
| | Quantity (1,000 square feet) | | | | | |
| 1937 | Not available | 3/ 3,558 | 1,301 | 765 | 212 | 153 |
| 1938 | | 3/ 2,972 | 449 | 179 | 121 | 109 |
| 1939 | | 3/ 4,309 | 632 | 84 | 175 | 118 |
| 1943 | | 3/4/ 7,946 | 72 | - | - | 72 |
| | Value (1,000 dollars) | | | | | |
| 1937 | 5/ 13,900 | 534 | 203 | 134 | 31 | 25 |
| 1938 | n.a. | 433 | 91 | 39 | 27 | 18 |
| 1939 | 5/ 15,000 | 794 | 84 | 24 | 31 | 20 |
| 1943 | n.a. | 4/ 2,444 | 8 | - | - | 8 |

1/ No imports of woven wire cloth containing dutiable alloys under paragraph 305.
2/ Includes Austria beginning 1938. 3/ Quantities in 1,000 pounds.
4/ Includes 4,751 thousand pounds valued at 1,464 thousand dollars exported under lend-lease. 5/ Partly estimated.
Source: Official statistics of the U. S. Department of Commerce, except as noted.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 318 | | | |
| Woven wire cloth: | | | |
| Gauze, fabric, or screen, made of wire composed of any metal or alloy, n.s.p.f.: | | | |
| Meshes not finer than 30 wires to the lineal inch | 25% ad val. | 1½¢ sq. ft. 1/ 12½% min. 25% max. ad val. | CANADA |
| Meshes finer than 30 wires, not finer than 90 wires to the lineal inch | 40% ad val. | 5¢ sq. ft. 1/ 20% min., 40% max. ad val. | CANADA |
| Meshes finer than 90 wires to the lineal inch | 50% ad val. | 50% ad val. | NETHERLANDS |

1/ Trade agreement with Canada, effective January 1939.
Note.- Woven wire cloth and all other products dutiable under paragraph 318 are subject to additional duties on alloy content, as specified under paragraph 305.

WOVEN WIRE CLOTH-Continued

Comment

Woven wire cloth is fabric woven chiefly from steel, copper, brass, or bronze wire. It is classified as (1) insect screening, (2) industrial wire cloth, and (3) hardware cloth, including diamond mesh, wire lath, and numerous specialties. A large part of the steel wire cloth is galvanized after weaving. Fourdrinier and cylinder wires used in paper-making machines are not included in this discussion. Wire cloth other than industrial is made only in meshes coarser than 90 wires to the lineal inch.

The official production statistics shown in the table include wire cloth, gauze, fabric and screen of all meshes in the insect screening, industrial wire cloth, and hardware cloth classifications. Official production data by meshes are not available. However, data are available in trade statistics to show the value of shipments by meshes of industrial wire cloth, the classification which predominates in imports. In 1939 the total shipments of industrial wire cloth produced in the United States were valued at 4.7 million dollars, which represents about one-third of the total value of production of all classifications. Of the industrial wire cloth shipments, 76 percent (in value) were of 30 meshes or coarser per lineal inch, 14 percent of meshes more than 30 but not more than 90, and 10 percent of meshes finer than 90.

Imports, which are almost entirely in industrial grades, were equal to about 1-1/2 percent of the value of United States production in all classifications in 1937 but only to about one-half percent in 1939. Total imports of industrial wire cloth in 1939 were equal to about 2 percent of the shipments of industrial wire cloth from domestic plants. The imports of 30 meshes or coarser were equal to one-half percent of shipments, of meshes more than 30 but not more than 90, to 2 percent, and of meshes finer than 90, to 10½ percent. The Netherlands and Germany were the leading sources of imports in 1939 for grades finer than 90 meshes and Canada for grades 90 meshes and coarser. In 1937 Germany was the leading source for all grades and supplied 80 percent of classifications finer than 90 meshes and 30 percent of classifications 90 meshes or coarser.

Although the export data shown in the table cover a broader scope of woven wire than either the production or import figures (for example, woven wire fencing is included), the United States has a fairly substantial export trade in items comparable to imports.

The following table shows that the finer cloth predominated in imports in 1939, notwithstanding the fact that it was subject to the highest rate of duty (50 percent ad valorem).

WOVEN WIRE CLOTH-Continued

Woven wire cloth: United States imports for consumption, by kind, with equivalent ad valorem of the duties, and principal sources, 1939

| Kind | Value | Equivalent ad valorem | Principal sources |
|---|---|---|---|
| | | Percent | |
| Wires to the lineal inch in warp and filling: | | | |
| Not more than 30 wires | $797 | 16 | CANADA, $494; France, $277 |
| | 12,031 | 12.5 | CANADA, $8,891; NETHERLANDS, $2,317 |
| | 5,354 | 25 | Belgium, $3,473; NETHERLANDS, $1,245; Germany, 1/ $625; CANADA, $11 |
| More than 30, not more than 90 wires | 6,189 | 32 | CANADA, $4,424; NETHERLANDS, $928 |
| | 6,328 | 20 | CANADA, $5,310; NETHERLANDS, $1,018 |
| | 2,550 | 40 | NETHERLANDS, $1,029; Germany 1/, $946; France, $575 |
| More than 90 wires | 50,252 | 50 | NETHERLANDS, $24,090; Germany 1/, $22,874; France, $2,572; CANADA, $716 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# CYLINDER WIRES AND WOVEN WIRE CLOTH FOR CYLINDER AND FOURDRINIER WIRES

Stat. import classes (1939): 610.31-32 and 610.41-42 (4 classes)

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Germany 1/ | Sweden | |
| | Quantity (square feet) | | | | | |
| 1937 | Not available (see text) | Not available 2/ | 13,020 | 13,020 | - | |
| 1938 | | | 380 | - | 380 | |
| 1939 | | | - | - | - | |
| 1943 | | | - | - | - | |
| | Value (dollars) | | | | | |
| 1937 | Not available (see text) | Not available 2/ | 5,061 | 5,061 | - | |
| 1938 | | | 151 | - | 151 | |
| 1939 | | | - | - | - | |
| 1943 | | | - | - | - | |

1/ Includes Austria in all years. Imports were principally from Austria in 1937. All imports were cloth with wires more than 55 per lineal inch.

2/ Negligible.

Source: Imports from official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 318 | | | |
| Cylinder wires suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines), and woven-wire cloth suitable for use in the manufacture of cylinder and Fourdrinier wires: | | | |
| More than 55 meshes per lineal inch in warp or filling | 50 | 1/ 75 | CANADA |
| 55 meshes or less per lineal inch in warp and filling | 50 | 50 | do. |

1/ Presidential proclamation under sec. 336, effective April 1941.

Note.- Subject to an additional import-excise tax of 3 cents a pound gross weight if copper, including copper alloys, is the component of chief value. (Internal Revenue Code, section 3425.

CYLINDER WIRES AND WOVEN WIRE CLOTH FOR CYLINDER AND FOURDRINIER WIRES-Continued

## Comment

This discussion is confined to woven cylinder wires [1] and woven-wire cloth used for paper-making machines which employ cylinders (drums covered with wire which pick up the pulp solution from a tank) and cloth suitable for making Fourdrinier wires (endless belt type in contrast to cylinder). Cylinder machines are used extensively in the production of multiple-ply papers. The cloth (commonly called "cut-cloth") has been woven almost exclusively from copper-base alloy (brass and bronze) wire.

Comparable United States production data for these cylinder wires [1] and cut cloth are not available, but domestic output has greatly exceeded imports. Production of woven-wire cloth for both cylinder and Fourdrinier processes amounted to a little over 1,500 short tons in 1939, valued at about 5.4 million dollars. In recent years domestic manufacturers have developed a superior patented joint for installation of the cloth on the drums, which probably gives them a competitive advantage over foreign producers. Exports have been negligible.

Imports of cylinder wires have been negligible compared with production, particularly following the increase, in 1931, in the rate of duty for the fine mesh wires, which predominate in both production and imports. None was imported from 1931 to 1934 nor from 1938 to 1943. No imports of woven wire suitable for making cylinder or Fourdrinier wires were reported 1935 through 1943. Imports of cloth for a little over 6 months in 1930 at the rate of duty fixed in the Tariff Act of 1930 were on an annual basis of about 90,000 square feet, valued at $20,000. Imports of cylinder wires for the 3-year period 1935-37 averaged around 10,500 square feet valued at $3,000, 93 percent of the quantity and 95 percent of the value being at 75 percent ad valorem. This was very largely of fine mesh, and Austria, Germany, and Sweden supplied 55, 37, and 8 percent, respectively, of the total value.

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1/ The expression "cylinder wires" refers to a wire mesh rather than to separate wires.

# ANCHORS AND PARTS

Stat. import class (1939): 620.05

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Canada | |
| | Value (dollars) | | | | | |
| 1937 | Not available 1/ | Not available 2/ | 3/ 2,179 | 567 | 593 | |
| 1938 | | | 3,486 | 3,486 | - | |
| 1939 | | | 708 | 521 | 187 | |
| 1943 | | | 100 | - | 100 | |

1/ Very much larger than imports.
2/ Probably negligible.
3/ Includes imports from Mexico valued at $1,019.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 319(a) | | | |
| Iron or steel anchors and parts | 25 | 1/ 15 | UNITED KINGDOM |

1/ Trade agreement with the United Kingdom, effective January 1939.

## Comment

United States production is centered largely near consuming points because the weight of anchors in relation to their value makes transportation costs high if they are shipped any great distance. This is particularly true of the large anchors which are usually sold direct to the consumer; smaller sizes are generally sold through jobbers. For this reason, anchors do not enter international trade to any great extent. Those that do enter foreign trade channels are generally the smaller sizes which, having higher values per pound, can carry the transportation charges to better advantage. When possible, anchors for replacement purposes are obtained from manufacturers near the port where the vessel is docked to avoid the loss of time involved in ordering from foreign sources.

Before the war, the United Kingdom normally was the principal exporter of anchors. Its extensive shipping interests and large shipbuilding industry gave it the advantage of the world's largest home market.

During the war, the United States became the leading shipbuilding nation. After the war, Great Britain may or may not recover her primacy in this line.

Imports of anchors into the United States have been practically nelgigible at all times, both for the reasons set forth in the preceding paragraph and because companies which insure American-built ships generally prefer American-made anchors which they can test readily. The imports have come chiefly from the United Kingdom. Such changes as have occurred in imports have not been due to changes in the tariff but to variations in shipbuilding activity and more or less accidental factors. Although the duty was reduced by the agreement with the United Kingdom, effective January 1, 1939, the imports in 1939 were much smaller than before.

AUTOCLAVES, ETC., AND PARTS

Stat. import classes (1939): 6116.0-6116.1

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | Netherlands | Germany 2/ | UNITED KINGDOM |
| | Value (dollars) | | | | | |
| 1937 --- | Not | Not | 3,312 | 178 | 2,064 | 1,070 |
| 1938 --- | avail- | | 6,494 | - | 5,701 | 793 |
| 1939 --- | able | avail- | 1,709 | 1,709 | - | - |
| 1943 --- | (see text) | able | 3/ 247,733 | - | - | 66,700 |

1/ No imports including dutiable alloys.
2/ Includes Austria beginning 1938.
3/ Free for Government use, imports valued at $43,704 from Canada, also imports valued at $195,832 duty-free as an act of international courtesy, principally from Canada and the United Kingdom.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 319(b) | | | |
| Autoclaves, catalyst chambers or tubes, converters, reaction chambers, scrubbers, separators, shells, stills, ovens, soakers, penstock pipes, cylinders, containers, drums, and vessels, *** wholly or in chief value of iron or steel, by whatever process made (except by casting), wholly or partly manufactured, if over 20 inches at the largest inside diameter (exclusive of non-metallic lining) and having metal walls one and one-fourth inches or more in thickness, and parts for any of the foregoing ---------- | 1/ 35 | 1/ 35 | UNITED KINGDOM |

1/ Subject to additional duty under par. 305 on alloy content. (See separate digest.)

AUTOCLAVES, ETC., AND PARTS-Continued

Comment

The products enumerated above consist mainly of large cylindrical steel vessels used in many industries for various purposes, such as for heating liquids at high pressures, for transforming materials from one physical condition to another, and for various chemical reactions at high pressures and temperatures. There are three processes of manufacture of such vessels: (a) Forging (seamless), (b) welding, and (c) riveting. Forged vessels are the most costly to produce and are used under severe service conditions where heavy wall thickness is necessary. Demand for this type of vessel is small relative to the demand for other types, and has been declining for many years following the rapid advance in the technique of welding and the resulting greater demand for welded vessels. Riveted vessels are used for less exacting applications.

In the immediate prewar years there were only two domestic producers of vessels of the forged seamless variety, but many producers of the others. The manufacture of pressure vessels is a relatively unimportant part of the total business of most of these producers but total output of them is many times as large as imports. Production of forged vessels is entirely in eastern Pennsylvania, but plants for the manufacture of welded and riveted vessels are scattered .

Imports were largest in the period 1925-28; even then, however, they were estimated to be less than $350,000 foreign value annually and less than 10 percent of domestic production. Mainly as a result of important technological advanced in welding in this country, imports declined sharply after 1928 and were less than $2,000 annually in the 4 years immediately preceding the war. Since 1928 imports have consisted almost entirely of costly forged vessels offering little competition to domestic production, which mainly consists of vessels made by the cheaper welding process.

## ELECTRIC STORAGE BATTERIES AND PARTS, N.S.P.F.

Stat. import class (1939): 709.80

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Germany 1/ | United Kingdom |
| | Value (dollars) | | | | | |
| 1937 ---- | 78,250,221 | 2,839,534 | 6,446 | 3,888 | 937 | 237 |
| 1938 ---- | n.a. | 2,195,539 | 2/ 8,225 | 1,222 | 691 | 430 |
| 1939 | 81,122,239 | 2,405,720 | 2,125 | 363 | 605 | 538 |
| 1943 | n.a. | 3/ 6,951,519 | 4/ 45,245 | 43,811 | - | 240 |

1/ Includes Austria beginning 1938.
2/ Includes imports from Denmark (valued at $5,441). Negligible in other years.
3/ Includes batteries valued at $5,064,172 exported under lend-lease.
4/ Free for Government use $19,666; total also includes $20,331 imported free as an act of international courtesy.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 320 | | | |
| Electric storage batteries and parts | 40 | 40 | CANADA |

### Comment

Among the purposes served by storage batteries are the starting of automobiles, underwater propulsion of submarines, operation of material-handling equipment, and maintainence of a stand-by source of power where unusual reliability is needed.

Two types are in common use. The lead-acid type, utilizing lead plates in sulphuric acid, is used for automobile starting and many other purposes. About one-third of the lead produced is consumed in these batteries. The alkaline, or "Edison" battery, having nickel and iron in an alkaline solution, has advantages for many applications. A third type, using nickel and cadmium in alkaline solution, has been less used, but certain advantages are claimed for it.

Lead batteries are made in great numbers by mass-production methods in the United States, England, and Germany, and on a smaller scale in other countries. The battery-producing concerns of some countries use imported parts. In the United States a few large and many smaller firms make lead storage batteries; they are not made by the producers of other electrical apparatus. The nickel-iron type, made by one firm in the United States, is also made in other industrial countries. Cadmium batteries are produced on a small scale in England, Sweden, Germany, and France; they are not produced in the United States.

ELECTRIC STORAGE BATTERIES AND PARTS, N.S.P.F.--Continued

Three lead-battery manufacturers, the largest in the United States, England, and prewar Germany, were linked by comprehensive agreements, which also influenced, through affiliations, operations in Sweden and many other countries. These agreements provided market allocations for foreign members and allegedly for the American member, and it has been alleged that they have, by reason of various affiliations, restricted the development and use of the cadmium battery. However, there are other large producers in the United States, and in 1939 exports from the United States to British Empire countries were half as large as those from Great Britain to those markets. American storage batteries are exported to virtually every country in the world.

# ANTIFRICTION BALLS AND ROLLERS

Stat. import class (1939): 7690.0

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from— | | | |
|---|---|---|---|---|---|---|
| | | | All countries | UNITED KINGDOM | Sweden | Germany 2/ |
| | Quantity (pounds) | | | | | |
| 1937 | Not available | Not available | 73,481 | 37,463 | - | 35,478 |
| 1938 | | | 25,366 | 13,923 | 51 | 10,636 |
| 1939 | | | 98,110 | 25,577 | 63,619 | 7,733 |
| 1943 | | | 84 | 15 | - | - |
| | Value (dollars) | | | | | |
| 1937 | 4,847,109 | 102,537 | 53,738 | 32,683 | - | 20,999 |
| 1938 | n.a. | 84,914 | 24,991 | 15,962 | 30 | 8,819 |
| 1939 | 3,810,008 | 116,015 | 44,401 | 24,459 | 12,506 | 6,672 |
| 1943 | n.a. | 3/1,298,302 | 430 | 378 | - | - |
| | Unit value (per pound) | | | | | |
| 1937 | Not available | Not available | $0.731 | $0.872 | - | $0.587 |
| 1938 | | | .985 | 1.146 | $0.588 | .825 |
| 1939 | | | .453 | .956 | .196 | .363 |
| 1943 | | | 5.119 | 25.200 | - | - |

1/ Includes only balls and rollers sold separately, not incorporated by the manufacturer in complete bearings. 2/ Includes Austria beginning 1938.
3/ Includes merchandise valued at $707,797 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| Par. 321 | | | |
| Antifriction balls and rollers | 10¢ lb. + 45% ad val. | 8¢ lb. + 25% ad val. 1/ | UNITED KINGDOM |

1/ Reduced to 8 cents per pound plus 35 percent in trade agreement with Sweden, effective August 1935, and to 8 cents per pound plus 25 percent in agreement with the United Kingdom, effective January 1939.

Note.- The duty on total imports was equivalent to 48 percent ad valorem in 1938 and to 26 percent in 1943.

## Comment

Balls and rollers are used mainly as parts of ball and roller bearings, but the cheaper grades are also used alone in various hardware articles such as roller skates and casters. A few of the largest domestic producers of bearings make their balls and rollers, but the smaller firms buy them because of the difficulty of producing on a small scale the exact dimensions wanted. Not only complete bearings but also balls and rollers are sold by the larger bearing manufacturers or their subsidiaries, and three or four firms specialize in balls and rollers.

Even the larger bearing manufacturers buy some balls and rollers of certain sizes. The value of United States production of ball and roller bearings in 1939 amounted to more than 100 million dollars. The automobile and machinery industries are the large users of bearings, and the largest domestic producer is an automobile manufacturer.

ANTIFRICTION BALLS AND ROLLERS-Continued

The United States, Germany, the United Kingdom, and Sweden were the largest prewar producers of bearings, in that order. The United States output was from five to eight times that of Sweden in value, and more than four times that of the United Kingdom. During the war domestic production quadrupled, but estimated present ratios of productive capacity in the three countries are comparable with those of prewar production.

A Swedish firm, "SKF," manufacturing in Sweden, Germany, England, France, and the United States, is the largest foreign producer, the largest world exporter, and the second largest producer in the United States.

International trade in balls and rollers is much smaller than that in complete bearings. Two United States bearing manufacturers import some balls from affiliates in the United Kingdom and Sweden, especially those of sizes not in large demand in the United States, and other bearing producers and hardware manufacturers also import some of their balls and rollers.

# IRON CASTINGS INCLUDING CAST-IRON PIPE AND FITTINGS AND MOLDER'S PATTERNS (SUMMARY DIGEST)

Stat. import classes (1939): 6091.0-1; 6113.1-2; 6113.7; 6113.8 and 985.03

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 3/ | UNITED KINGDOM | FRANCE | CANADA |
| | Quantity (short tons) | | | | | |
| 1937 | 4/ 6,455,000 | 45,646 | 5,115 | 444 | 1,458 | 2,570 |
| 1938 | n.a. | 41,489 | 2,164 | 329 | 1,530 | 126 |
| 1939 | 5/ 5,691,000 | 56,925 | 2,358 | 326 | 1,898 | 112 |
| 1943 | n.a. | 6/ 53,186 | 7/ 125 | - | - | 124 |
| | Value (dollars | | | | | |
| 1937 | 8/ 508,739,000 | 3,432,000 | 435,906 | 116,355 | 45,305 | 235,721 |
| 1938 | n.a. | 3,301,000 | 155,785 | 87,930 | 46,178 | 10,867 |
| 1939 | 8/ 429,337,000 | 3,767,000 | 153,990 | 86,752 | 53,298 | 10,227 |
| 1943 | n.a. | 6/ 7,141,000 | 7/ 29,525 | - | - | 28,714 |

1/ Includes gray-iron and semi-steel castings, malleable iron castings, and cast-iron pipe and fittings made in establishments primarily engaged in making these products (for sale and interplant transfer only), and as secondary products in other establishments.

2/ Includes only products which are dutiable under paragraph 327.

3/ There were no imports containing dutiable alloys in 1937-39.

4/ In addition, 1,956,000 tons were produced and consumed in the same plants.

5/ In addition, 1,929,000 tons were produced and consumed in the same plants.

6/ Includes 4,941 short tons, valued at $1,463,664, exported under Lend-Lease.

7/ Free for Government use, 36 short tons valued at $11,474.

8/ Includes $7,849,000 in 1937 and $975,000 in 1939 not reported by quantity.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327: | | | |
| Cast-iron pipe of every description, and cast-iron fittings for cast-iron pipe | 25 | 1/ 15 | CANADA, FRANCE |
| Cast-iron andirons, plates, stove plates, sadirons, tailors' irons, hatters' irons, but not including electric irons, and castings and vessels wholly of cast iron, including all castings of iron or cast-iron plates, which have been chiseled, drilled, machined or otherwise advanced in condition by processes or operations subsequent to the casting process but not made up into articles, or parts thereof, or finished machine parts | 20 | 2/ 10 | UNITED KINGDOM, CANADA |
| Castings of malleable iron, n.s.p.f. | 20 | 3/ 10 & 20 | UNITED KINGDOM, CANADA |
| Molders' patterns, of whatever material composed, for the manufacture of castings | 50 | 4/ 25 | CANADA |

1/ Trade agreements with France, effective June 1936, and Canada (fittings only), effective January 1939.

2/ Trade Agreement with Canada, effective January 1939.

3/ The 10 percent rate applies to castings of malleable iron for heel and other plates for boots and shoes only; trade agreement with the United Kingdom, effective January 1939.

4/ Trade agreement with Canada, effective January 1939.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

IRON CASTINGS INCLUDING CAST-IRON PIPE AND FITTINGS AND MOLDERS' PATTERNS-Cont'd.

Comment

This overall digest covers all iron castings (including cast-iron pipe and fittings), subject to import duties under paragraph 327; see separate digests covering individual products or groups of products.

Iron castings are used for a variety of purposes where both economy and such physical qualities as intricacy of shape, hardness and wear resistance, corrosion resistance, and massiveness are desirable. Pipe and pipe fittings, rolls, ingot molds, castings for sanitary ware, engine blocks, parts of machinery of all kinds, and chilled iron castings, are some of the many products of the industry.

The industry is an important segment of the iron and steel industry, and on the basis of its products it is divided into a number of branches of which the gray-iron and the malleable-iron branches are the most important, the former being far more important than the latter. According to the Census of Manufactures, in 1939 the net value added to material by manufacture in all foundries amounted to $203,313,000 and the average number of wage earners employed was 92,957. The iron and steel industry as a whole (including blast furnaces, steelworks and rolling mills, and foundries) in the same year produced a value added by manufacture of $1,528,178,000, and employed 511,486 wage earners.

During the war there was considerable expansion in the productive capacity of the industry, especially in the capacity for gray-iron castings; part of this expansion was financed by the Government. In 1945 the average capacity for gray-iron castings was 1,570,000 short tons a month, and the capacity for malleable-iron castings was slightly more than 100,000 tons a month. Production of foundry and malleable grades of pig iron increased from 3,297,000 tons in 1939 to 4,685,000 tons in 1944. Total shipments of iron castings in the latter year amounted to 10,685,000 tons from 2,525 foundries; in 1939 there were 1,318 foundries in operation. Average employment by the foundry industry in 1944 was 114,700 wage earners.

Although there are foundries in almost every part of the United States, a large number of them , with the bulk of the productive capacity, are concentrated in a few areas. In 1945 Pennsylvania , Michigan, Ohio, and Illinois accounted for almost half of the United States productive capacity for gray-iron castings; Alabama, New York, New Jersey, Wisconsin, Indiana, and California accounted for 30 percent. Iron castings are produced by both large and small foundries, some of which are owned and operated by iron and steel concerns, some by manufacturers of automobiles, agricultural implements, railway material, and other products, and some are independent concerns. The latter concerns are more numerous and sell castings as such, while foundries operated by iron and steel and other manufacturing concerns principally make castings for their own use. According to the Census of Manufactures, in 1939 about two-thirds of the output of gray-iron castings was made for sale and interplant transfer, and the remainder was produced and consumed in the same plant.

The domestic industry is highly efficient and has in the past supplied all but a very small part of the large domestic requirements. Exports have always been many times larger than imports. Before the war the principal import item was cast-iron pipe, imported mainly from one large plant in France, and cast-iron-pipe fittings, imported from Canada and France (see separate digest). Other import items were various specialty gray-iron castings imported mainly from the United Kingdom, Canada, and Germany (see separate digest); malleable iron heel, sole, toe plates and related castings for boots and shoes, imported exclusively from the United Kingdom (see separate digest); and miscellaneous specialty malleable castings, imported mainly from Canada and Germany (see separate digest).

IRON CASTINGS INCLUDING CAST-IRON PIPE AND FITTINGS AND MOLDERS' PATTERNS-Cont'd.

Imports before the war were declining for a number of reasons: First, the United States industry over a period of years had made considerably more technological progress in many iron and steel products than most other countries and was a world leader in the production of many cast-iron products, notably cast-iron pressure pipe. The wide application of centrifugal methods of casting pressure pipe has resulted in a great improvement in quality, reduction in the cost of production, and a consequent decline in imports. Second, because of their low value per unit of weight, the cost of transporting iron castings over long distances is prohibitive; imports, therefore, could not effectively compete with domestic production in the important inland markets and their distribution was restricted to less important markets in or adjacent to the ports of entry. Because of its proximity to the United States, Canada had an advantage in certain United States markets over other foreign suppliers. A few import specialties having a relatively high unit value found a market in many parts of the country. A third important factor which has tended in the past to restrict imports and international trade in iron castings is that the bulk of them are made for specific applications; many domestic foundries, for instance, make their own patterns necessary for the manufacture of castings.

United States exports went to a large number of countries before the war, especially to countries of the Western Hemisphere. In 1939, in terms of value, cast-iron pressure pipe and fittings were the largest export item, and the Philippine Islands, Panama Canal Zone, and Mexico were the principal outlets for this product. Cast-iron soil pipe and fittings were the second largest and gray-iron castings the third largest export items, the Philippine Islands and Canada, respectively, being the principal markets. Gray-iron castings, cast-iron screwed pipe fittings, and malleable iron castings were other products of the export trade, going principally to Canada, Venezuela, and the Philippine Islands.

Cast iron: United States imports, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Cast-iron pipe and fittings | $53,620 | FRANCE, $53,273; CANADA, $347. |
| Andirons, plates, stove plates, sadirons, tailors' and hatters' irons, not electric, castings, and vessels of cast iron | 19,279 | UNITED KINGDOM, $8,206; CANADA, $7,655; Germany, 1/ $3,262; Belgium, $55. |
| Malleable iron castings, n.s.p.f. | 80,706 | UNITED KINGDOM, $78,546; CANADA, $1,865; Denmark, $127; Germany, 1/ $114; France, $25. |
| Molders' patterns of whatever material composed for the manufacture of castings | 385 | CANADA, $360; Dominican Republic, $25. |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

# CAST IRON PIPE AND CAST IRON PIPE FITTINGS

Stat. import classes (1939): 6091.0-1

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from-- | | |
|---|---|---|---|---|---|
| | | | All countries | FRANCE | CANADA |
| | Quantity (short tons) | | | | |
| 1937 ---- | 1,098,413 | 34,917 | 3,676 | 1,452 | 1,792 |
| 1938 ---- | n.a. | 35,719 | 1,729 | 1,529 | 71 |
| 1939 ---- | 1,264,329 | 51,685 | 1,900 | 1,898 | 1 |
| 1943 ---- | n.a. | 2/ 29,313 | 25 | - | 23 |
| | Value (dollars) | | | | |
| 1937 ---- | 66,211,862 | 2,343,584 | 152,262 | 43,717 | 94,258 |
| 1938 ---- | n.a. | 2,474,954 | 51,015 | 45,395 | 1,477 |
| 1939 ---- | 69,387,025 | 2,946,059 | 53,620 | 53,273 | 347 |
| 1943 ---- | n.a. | 2/ 2,944,697 | 3,387 | - | 2,805 |

1/ Includes cast iron pipe and fittings made in the industry proper and as secondary products in other industries. Figures exclude certain quantities not reported; value figures include $975,000 in 1939 and $7,649,000 in 1937, the imputed value of quantities not reported. U. S. Census of Manufactures, 1939.

2/ Includes 4,546 short tons, valued at $897,416 exported under Lend-Lease.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327 | | | |
| Cast-iron pipe of every description | 25 | 1/ 15 | FRANCE |
| Cast-iron fittings for cast-iron pipe ---------- | 25 | 2/ 15 | CANADA, FRANCE |

1/ Trade agreement with France, effective June 1936.

2/ Trade agreements with France, effective June 1936 and Canada, effective January 1939.

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

## Comment

Cast iron pipes are of two general types: (1) Pressure pipe, and (2) soil or plumbers' pipe. Pressure pipe comprises from 80 to 85 percent of production in the United States and practically all of the imports. It is used primarily in local distribution systems for water and gas. It is made mostly by large specially equipped foundries, the bulk of whose production is cast iron pipe and cast iron fittings. Nominal inside diameters of pressure pipe range from 1¼ to 84 inches; standard lengths commonly used are 12, 16, and 18 feet. Cast iron fittings for cast iron pipe consist of the curves, joints, tees, reducers, etc., used as connections in cast-iron-pipe systems.

The United States occupies a predominant position in the world's cast iron pipe industry, normally producing more than all other countries combined. Census reports indicate that in 1939 there were 74 establishments in the United States primarily engaged in the manufacture of cast iron pipe and fittings. They

CAST IRON PIPE AND CAST IRON PIPE FITTINGS-Continued

employed 18,000 wage earners. More than a third of these establishments were located in Alabama. Pennsylvania ranked second with 10 establishments. New York, New Jersey, Ohio, and California were also important producing States, and some production was carried on in a number of other States.

Imports of cast iron pipe, reported to be exclusively of the pit cast pressure grade, for many years before the war came principally from one highly integrated plant located at Pont-a-Mousson, France. France was the leading world exporter before the war and this plant supplied the bulk of French exports. Canada has been the leading source of United States imports of cast iron pipe fittings for many years (see table at the end).

Compared with domestic production, prewar imports were small. The largest imports were in 1926 and 1927, when they had a foreign value of about 2.5 million dollars a year; the duty was then 20 percent. Since then the trend has been generally downward, especially after 1929. The reduction in the rate of duty in 1936 apparently had little effect on imports. The declining trend can be accounted for principally by the development in the United States of centrifugal methods of casting pressure pipe, which has resulted in improved quality and in a reduction of the cost of production. About 75 percent of the tonnage and 85 percent of the footage of cast iron pressure pipe is now produced by such methods. Before the war, some progress in the use of these methods of casting iron pipe was made in a number of foreign countries, including France, but the United States has predominated in the production of centrifugal pipe. Foreign producers were licensees of United States holders of basic process patents on centrifugally cast pipe. The foreign producers were licensed in such a manner that they were either forbidden to export centrifugal pipe to the United States or they were severely restricted in their exports because of extra royalties imposed on sales in the United States.

Although the basic patents on the centrifugal processes have expired, some foreign producers still pay royalties to the U. S. Pipe and Foundry Co. for certain additional patents on an important process owned by that company.

Cast iron pipe and fittings: United States imports, by kinds, with principal sources, 1937-39

| Product and principal supplier | Value | | |
|---|---|---|---|
| | 1937 | 1938 | 1939 |
| Cast iron pipe: | | | |
| All countries | $68,700 | $50,175 | $53,273 |
| FRANCE | 43,659 | 44,982 | 53,273 |
| Canada | 11,013 | 1,414 | - |
| Fittings: | | | |
| All countries | 83,562 | 840 | 347 |
| FRANCE | 58 | 413 | - |
| CANADA | 83,245 | 63 | 347 |

Source: Official statistics of the U. S. Department of Commerce.

Because of its high phosphorus content, French pipe is more brittle than and consequently inferior to domestic product. In the past, foreign producers were often unable to make prompt delivery. These unfavorable factors will be as important in limiting imports in the future as they were in prewar years.

IRON CASTINGS; SADIRONS, ETC.; CASTINGS OR CAST-IRON PLATES, MACHINED, COATED, etc.

Stat. import classes (1939): 6113.1-2

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports 2/ | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries 3/ | UNITED KINGDOM | CANADA | Germany 4/ | Belgium |
| | Quantity (short tons) | | | | | | |
| 1937 | 4,776,000 | 6,000 | 553 | 17 | 487 | 19 | 8 |
| 1938 | n.a. | 4,000 | 63 | 5 | 48 | 6 | 2 |
| 1939 | 4,000,000 | 4,000 | 147 | 28 | 99 | 19 | 1 |
| 1943 | n.a. | 5/ 16,000 | 6/ 85 | - | 85 | - | - |
| | Value (dollars) | | | | | | |
| 1937 | 362,756,000 | 633,000 | 113,384 | 4,607 | 99,414 | 2,961 | 2,209 |
| 1938 | n.a. | 582,000 | 10,039 | 1,057 | 5,914 | 1,062 | 198 |
| 1939 | 301,052,000 | 614,000 | 19,279 | 8,206 | 7,655 | 3,262 | 55 |
| 1943 | n.a. | 5/2,702,000 | 6/20,257 | - | 20,257 | - | - |

1/ Total production of gray iron castings (except cast iron pipe and fittings) made in the industry principally engaged in the production of such castings and as secondary products in other industries, for sale and for interplant transfer only. In addition, 1,876,000 tons in 1937 and 1,848,000 tons in 1939 were produced and consumed in the same plant.

2/ Includes all gray iron castings, other than cast iron pipe and fittings.

3/ No imports containing dutiable alloys.

4/ Includes Austria beginning 1938.

5/ Principally lend-lease exports.

6/ Free for Government use 33 short tons, valued at $10,455.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327 | | | |
| Sadirons, tailors' irons and hatters' irons, but not including electric irons, cast-iron andirons, plates, stove plates, and castings and vessels wholly of cast iron, including castings of iron or cast-iron plates, machined or advanced, not made into articles 1/ ---------- | 20 | 1/10 | UNITED KINGDOM, CANADA |

1/ Trade agreement with Canada, effective January 1939.

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

IRON CASTINGS; SADIRONS, ETC.; CASTINGS OR CAST-IRON PLATES, MACHINED, COATED, ETC.--Continued

Comment

This digest includes all gray-iron castings, with the exception of the following: (1) Cast iron pipe and fittings, treated in a separate digest; (2) railroad car wheels and certain other gray-iron castings, dutiable under paragraph 324; and (3) cast hollow ware, dutiable under paragraph 327 of the 1930 tariff at the rate of 20 percent ad valorem.

Production of iron castings in the United States is very large, and gray-iron castings constitute the most important branch of the foundry industry; a much less important branch is malleable-iron castings. Of a total number of 2,770 foundries in the United States with a total output of over 12 million tons in 1944, over 2,400 were gray-iron foundries, with a total production of nearly 10 million tons. Such foundries are found in almost every part of the United States, but much the larger part of the productive capacity is concentrated in the following States, listed according to total output in 1939: Michigan, Pennsylvania, Illinois, Ohio, New York, Wisconsin, and Indiana. Some of these foundries make castings for sale, and others are operated by manufacturers who use the castings they produce as parts of their final product. In 1939, Census figures show that about two-thirds of the output of gray-iron castings was made for sale and interplant transfer, and about one-third was produced and consumed in the same plant. Total employment in the 1,161 establishments covered by the Census in that year was nearly 60,000 wage earners.

Compared with domestic production, imports in the past have been insignificant and rather irregular, particularly with reference to individual countries of origin. Generally, Canada has supplied the bulk of the imports and small quantities have been imported also from the United Kingdom, Germany, and Belgium. Specialties have figured prominently in the imports from Europe, and shipments from Canada often-times have been made to affiliated plants in the United States for stock-balancing or for convenience in operations.

Import duties are a much less important factor in determining the magnitude of imports than are a number of other factors inherent in the product itself, particularly the low value of castings relative to their weight, which makes the cost of transporting castings over long distances uneconomic or even prohibitive. This factor tends also to restrict United States exports and international trade in castings in general.

Iron castings: United States imports for consumption, by kind, with principal sources, 1939

| Kind | Total value | Principal sources |
|---|---|---|
| Sadirons, tailors' and hatters' irons, not electric, andirons, plates, stove plates, castings, and vessels of cast iron: | $7,779 | UNITED KINGDOM, $2,714; CANADA, $2,615; Germany, 1/ $2,361; Belgium, $55 |
| Castings or cast iron plates, machined or advanced, not made into articles: | 11,500 | UNITED KINGDOM, $5,492; CANADA, $5,040; Germany 1/ $901 |

1/ Includes Austria.

Source: Official statistics of the U. S. Department of Commerce.

MALLEABLE IRON SHOE PLATES

Par. No. 327
UNITED KINGDOM

Stat. import class (1939): 6113.7

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries 1/ | UNITED KINGDOM | | |
| | Quantity (short tons) | | | | | |
| 1937 | Negligible | Negligible | 437 | 437 | | |
| 1938 | | | 323 | 323 | | |
| 1939 | | | 299 | 299 | | |
| 1943 | | | - | - | | |
| | Value (dollars) | | | | | |
| 1937 | Negligible | Negligible | 112,537 | 110,557 | | |
| 1938 | | | 86,644 | 86,644 | | |
| 1939 | | | 78,546 | 78,546 | | |
| 1943 | | | - | - | | |

1/ No imports of malleable iron shoe plates containing alloys dutiable under paragraph 305.

Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327 | | | |
| Castings of malleable iron for heel and other plates for boots and shoes | 20 | 1/ 10 | UNITED KINGDOM |

1/ Trade agreement with the United Kingdom, effective January 1939.

Note.- In addition to the base rate shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

## Comment

Malleable iron heel, sole, toe, and other plates for boots and shoes are fastened to the leather by thin tapered prongs which are an integral part of the casting. Per capita consumption in the United States is much smaller than in Europe.

The United Kingdom, the world's leading producer and exporter, has long been the principal supplier of the United States market. Before 1938 Japan also supplied small quantities.

During the last 15 years or so before the war, a few foundries in the United States had occasionally engaged in small-scale production, but in general they found it more profitable to produce other kinds of castings for which there is much greater demand. So far as is known, there has been little or no domestic production of malleable iron shoe plates since 1935. Shoe plates made of soft steel are produced in the United States, but they are reported to be inferior to the imported malleable-iron product.

# MALLEABLE IRON CASTINGS, N.E.S.

Stat. import class (1939): 6113.8

United States production, exports, and imports, 1937-39 and 1943

| Year | Production 1/ | Domestic exports | Imports for consumption from-- | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | CANADA | Germany 2/ | Japan | Belgium |
| | Quantity (short tons) | | | | | | |
| 1937 | 580,002 | 4,775 | 450 | 291 | 3 | 154 | 2 |
| 1938 | n.a. | 1,386 | 49 | 8 | 3 | 36 | 1 |
| 1939 | 427,040 | 1,326 | 13 | 12 | 3/ | 3/ | 3/ |
| 1943 | n.a. | 4/ 7,872 | 16 | 16 | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | 79,770,962 | 455,921 | 51,412 | 36,928 | 531 | 13,818 | 135 |
| 1938 | n.a. | 244,365 | 5,486 | 949 | 568 | 3,112 | 144 |
| 1939 | 58,897,990 | 236,542 | 2,160 | 1,865 | 114 | 7 | 22 |
| 1943 | n.a. | 4/ 1,494,536 | 3,856 | 3,856 | - | - | - |

1/ For sale and interplant transfer only; includes malleable iron castings made in the industry and as secondary products in other industries. U. S. Census of Manufactures, 1939. 2/ Includes Austria beginning 1938.
3/ Less than one-half short ton.
4/ Includes 223 short tons valued at $299,863 exported under lend-lease.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327 | | | |
| Castings of malleable iron, n.s.p.f. (except castings for heel and other plates for boots and shoes)--- | 20 | 20 | CANADA |

Note.- In addition to the base rates shown above, imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

## Comment

The railroads are usually the principal users of malleable iron castings, an important application of which is for journal boxes for railroad cars. Other important uses are in the manufacture of agricultural implements and machinery, certain parts and accessories for automobiles, stoves, furnaces, and household and harness hardware. Small pipe fittings for steel or wrought-iron pipe are usually also made of malleable cast iron, but for tariff purposes they are included under the "basket" paragraph 397, dutiable at 45 percent ad valorem. Castings of malleable iron for heel and other plates for boots and shoes, covered in a separate digest, are dutiable at 10 percent ad valorem, as a result of a trade agreement with the United Kingdom effective January 1939. Individual castings vary from a fraction of an ounce to several hundred pounds in weight.

According to Census information, there were some 115 establishments principally engaged in the production of malleable iron castings in 1939. Although such foundries are located in many parts of the United States, a large number of them are concentrated in Illinois, Michigan, Ohio, Indiana, Wisconsin, Pennsylvania, and New York. The productive capacity of the United States increased considerably during the war and was sufficient to produce slightly more than 100,000 tons of

MALLEABLE IRON CASTINGS, N.E.S.--Continued

malleable iron castings a month in 1945. Total shipments of malleable castings were nearly 900,000 tons in 1944 and 800,000 tons in 1945, as compared with about 470,000 tons in 1939.

There are a few relatively large producers of malleable iron castings, each of which has several foundries, but most of the producers are small concerns with only one plant of small capacity. A large number of the foundries are owned by concerns which use the castings in the production of more advanced products, but there are also many independent foundries producing for sale.

Imports in the prewar period were insignificant compared with domestic production and consisted chiefly of specialties with very limited demand. Foreign malleable castings are generally considered inferior to the domestic product.

## CAST HOLLOW WARE

Stat. import class (1939): 6113.4

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from— | | | | |
|---|---|---|---|---|---|---|---|
| | | | All countries | Germany 1/ | France | Japan | UNITED KINGDOM |
| | Quantity (pounds) | | | | | | |
| 1937 | Not available (see text) | Not available 2/ | 3/ 20,031 | - | 617 | 630 | 7,146 |
| 1938 | | | 1,450 | - | 617 | 200 | 38 |
| 1939 | | | 3,577 | 2,371 | 396 | 660 | - |
| 1943 | | | 4/ 2,772 | - | - | - | - |
| | Value (dollars) | | | | | | |
| 1937 | Not available (see text) | Not available 2/ | 3/ 899 | - | 97 | 68 | 391 |
| 1938 | | | 128 | - | 89 | 10 | 8 |
| 1939 | | | 315 | 114 | 89 | 77 | - |
| 1943 | | | 4/ 612 | - | - | - | - |

1/ Includes Austria beginning 1938. 2/ Probably negligible.
3/ Includes 11,638 pounds, valued at $343, from Belgium.
4/ Imported from Canada and Mexico.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327<br>Cast hollow ware, coated, glazed, or tinned, but not including enameled ware and hollow ware containing electrical elements -- | 20 | 20 | UNITED KINGDOM |

### Comment

The cast hollow ware here considered consists of such products as cast iron kettles or boilers used in industrial establishments, notably chemical manufacturing plants. United States requirements for these products are customarily supplied by domestic production, which is fairly large, the bulkiness of such products being a deterrent to international trade. Imports hitherto have been very small and sporadic.

## MOLDERS' PATTERNS, OF ANY MATERIAL

Stat. import class (1939): 985.93

United States production, exports, and imports, 1937-39 and 1943

| Year | Production | Domestic exports | Imports for consumption from-- | | | |
|---|---|---|---|---|---|---|
| | | | All countries | CANADA | | |
| | Quantity (pieces) | | | | | |
| 1937 --- | Not available 1/ | Not available 2/ | 1,435 | 1,381 | | |
| 1938 --- | | | 254 | 252 | | |
| 1939 --- | | | 76 | 71 | | |
| 1943 --- | | | 105 | 101 | | |
| | Value (dollars) | | | | | |
| 1937 --- | Not available 1/ | Not available 2/ | 6,311 | 5,084 | | |
| 1938 --- | | | 2,601 | 2,527 | | |
| 1939 --- | | | 385 | 360 | | |
| 1943 --- | | | 2,025 | 1,796 | | |

1/ Known to be very large.
2/ Exports for sale are probably negligible.
Source: Official statistics of the U. S. Department of Commerce.

| Item | United States tariff | | Proposed negotiating country |
|---|---|---|---|
| | Act of 1930 | 1945 rate | |
| | Percent ad valorem | | |
| Par. 327 | | | |
| Molders' patterns, of whatever material composed, for the manufacture of castings ---------- | 50 | 1/ 25 | CANADA |

1/ Trade agreement with Canada, effective January 1939.

Note.- The Tariff Act of 1913, section IV-J, subsection 4, and the Tariff Act of 1922, section 308 (3), authorized the importation free, under bond requiring exportation within 6 months, of molders' patterns for use in the manufacture of castings. The Tariff Act of 1930 contains no such exception, but section 4 of the Customs Administrative Act of 1938 amended section 308 of the Tariff Act of 1930 to permit the temporary free importation under bond of "articles of special design for temporary use exclusively in connection with the manufacture or production of articles for export." It is understood that this provision has been construed to authorize the free importation of molders' patterns for use in the manufacture of articles to be exported. In addition to the base rate shown above, dutiable imports of iron or steel patterns are subject to additional duties for alloy content under paragraph 305 (see separate digest).

### Comment

Molders' patterns are used in the production of ordinary castings. Patterns are made in the form of the casting desired, from either wood or other easily workable materials. If to be used many times, duplicates (usually metal) are made from the original or master pattern.

Production statistics are not available, but the value of the domestic output is known to be large. Patterns are made both by the producers or consumers of the castings, and by independent pattern shops.

Imports are very small and Canada has been the chief source of imports. The United Kingdom has also supplied small quantities in some years. It is probable that most patterns, especially those from Canada, are from affiliated plants of the importers.

# WELDED CYLINDRICAL FURNACES, ETC.

Stat. import class (1939): 6092.9

United States production, exports, and imports for consumption, 1937-39 and 1943

| Year | Production | Domestic exports | Imports |
|---|---|---|---|
| | Quantity | | |
| 1937 | Not available (see text) | Not available 1/ | N O N E |
| 1938 | | | |
| 1939 | | | |
| 1943 | | | |
| | Value | | |
| 1937 | Not available (see text) | Not available 1/ | N O N E |
| 1938 | | | |
| 1939 | | | |
| 1943 | | | |

1/ Probably negligible.
Source: Official statistics of the U. S. Department of Commerce.

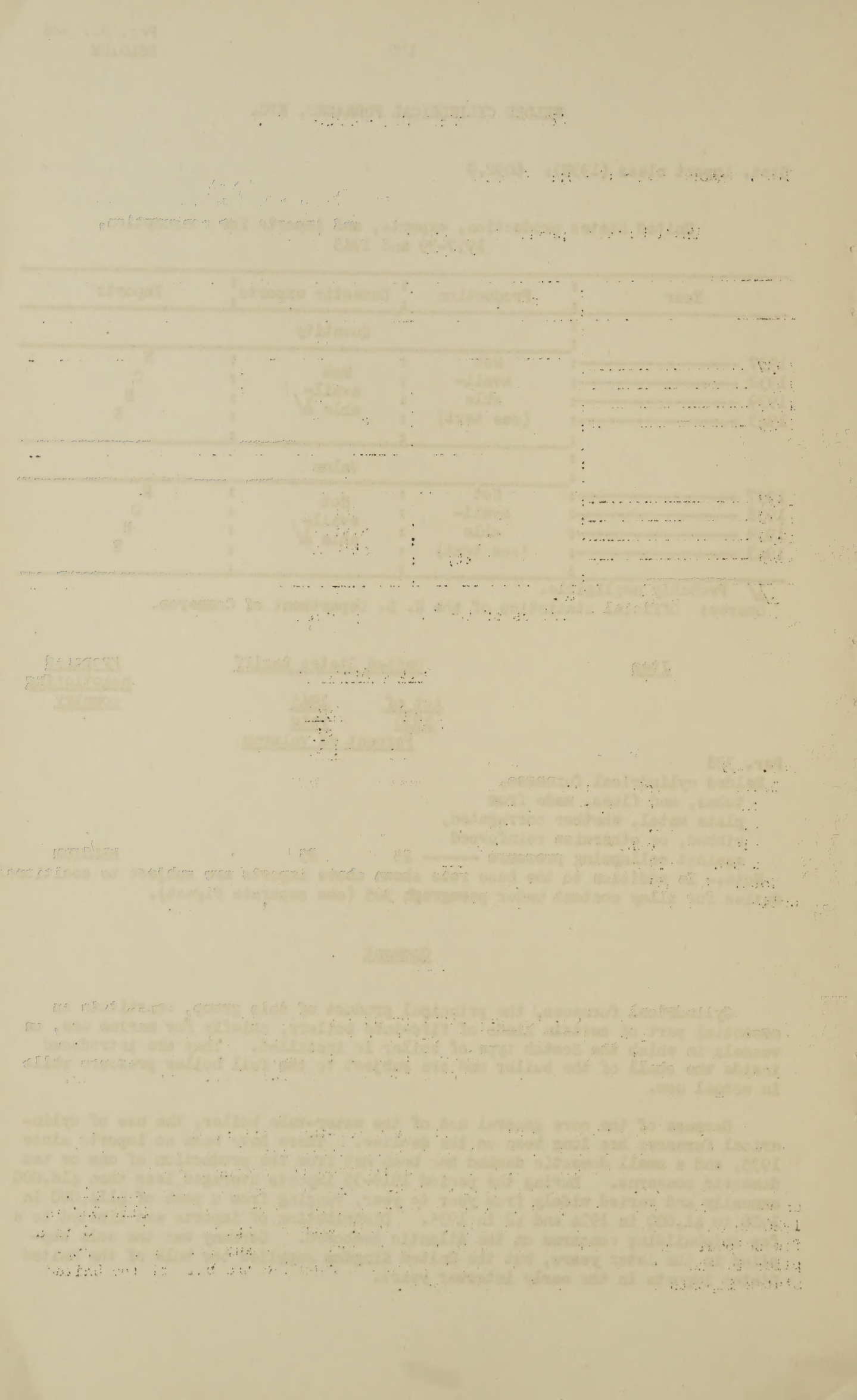
| Item | United States tariff: Act of 1930 | United States tariff: 1945 rate | Proposed negotiating country |
|---|---|---|---|
| | Percent ad valorem | | |
| Par. 328 Welded cylindrical furnaces, tubes, and flues, made from plate metal, whether corrugated, ribbed, or otherwise reinforced against collapsing pressure | 25 | 25 | BELGIUM |

Note.- In addition to the base rate shown above imports are subject to additional duties for alloy content under paragraph 305 (see separate digest).

## Comment

Cylindrical furnaces, the principal product of this group, constitute an essential part of certain kinds of fire-tube boilers, chiefly for marine use, on vessels in which the Scotch type of boiler is installed. They are introduced inside the shell of the boiler and are subject to the full boiler pressure while in actual use.

Because of the more general use of the water-tube boiler, the use of cylindrical furnaces has long been on the decline. There have been no imports since 1935, and a small domestic demand has been met from the production of one or two domestic concerns. During the period 1919-35 imports averaged less than $18,000 annually and varied widely from year to year, ranging from a peak of $114,000 in 1926 to $1,600 in 1934 and $2 in 1935. Distribution of imports was limited to a few shipbuilding concerns on the Atlantic seaboard. Germany was the sole supplier in the later years, but the United Kingdom supplied the bulk of the United States imports in the early interwar years.



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